

*Information Technology Industries*

**TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY  
MARKET OPPORTUNITIES  
FOR SMALL AND MEDIUM-SIZED ENTERPRISES**

**EXPORTIT CHINA**

**U.S. DEPARTMENT OF COMMERCE  
INTERNATIONAL TRADE ADMINISTRATION  
TRADE DEVELOPMENT  
INFORMATION TECHNOLOGY INDUSTRIES**

**APRIL 2003**



---

---

## TABLE OF CONTENTS

---

---

<b>ACKNOWLEDGEMENTS</b>	<b>iv</b>
<b>FOREWARD</b>	<b>v</b>
<b>EXECUTIVE SUMMARY</b>	<b>vi</b>
<b>TERMS &amp; ABBREVIATIONS</b>	<b>xiv</b>
<b>CHAPTER 1: OVERVIEW OF THE CHINA TELECOMMUNICATIONS, INFORMATION TECHNOLOGY AND E-COMMERCE MARKETS</b>	<b>1</b>
<b>CHAPTER 2: TELECOMMUNICATIONS</b>	<b>17</b>
<b>CHAPTER 3: INFORMATION TECHNOLOGY (IT)</b>	<b>34</b>
<b>CHAPTER 4: ELECTRONIC COMMERCE</b>	<b>55</b>
<b>CHAPTER 5: MARKET OPPORTUNITIES AND STRATEGIES</b>	<b>68</b>
<b>CHAPTER 6: THE ROLE OF THE DEPARTMENT OF COMMERCE</b>	<b>79</b>
<b>APPENDICES</b>	
<b>A. INFORMATION TECHNOLOGY AGREEMENT PRODUCTS BY HARMONIZED SYSTEM (HS) NUMBER</b>	<b>A-1</b>
<b>B. REGULATIONS OF ON TELECOMMUNICATIONS OF THE PRC</b>	<b>A-8</b>
<b>C. 2003 U.S.-CHINA JOINT COMMISSION ON COMMERCE AND TRADE, INFORMATION TECHNOLOGY INDUSTRY SUBGROUP WORK PLAN</b>	<b>A-28</b>
<b>D. USEFUL CONTACTS —</b>	
<b>UNITED STATES</b>	<b>A-31</b>
<b>CHINA</b>	<b>A-36</b>
<b>E. SELECTED IT AND TELECOMMUNICATIONS TRADE EVENTS IN CHINA</b>	<b>A-42</b>
<b>F. LIST OF ORGANIZATIONS CONTRIBUTING INFORMATION FOR THIS REPORT</b>	<b>A-44</b>



## **ACKNOWLEDGMENTS**

The report was prepared by international trade specialists from Information Technology Industries offices in the Trade Development unit of the U.S. Department of Commerce's International Trade Administration (ITA): Jeffrey Rohlmeier and Tu-Trang Phan of the Office of Information Technologies and Electronic Commerce, and John Henry of the Office of Telecommunications Technologies. They were actively supported by U.S. Commercial Service staff in China, including Jianhong (Michael) Wang in Beijing, Scott Shaw, Christie Ho, and Ronnie Xu in Shanghai, Rose Nickel and Xu Tao in Chengdu, and Kent Gou in Guangzhou.

Information on the Office of Information Technologies and Electronic Commerce and the Office of Telecommunications Technologies can be found at: (<http://www.export.gov/infotech>).

## **FOREWORD**

This report describes and analyzes the trends, key issues, and events in information technology, telecommunications, Internet and e-commerce adoption in China, to create a framework from which U.S. small and medium-sized enterprises (SMEs) can make educated business decisions about entering these markets. The report analyzes the status of telecommunications liberalization, competition in telecommunications services and the deployment of new technologies, and how these changes are affecting the adoption of the Internet and e-commerce. It also analyzes the economic, cultural, and political factors influencing the adoption of information, Internet, and e-commerce technologies. The report highlights issues and market opportunities relevant to U.S. SMEs in the telecommunications, information technology (IT), and e-commerce areas. In addition, it provides suggested market entry strategies for SMEs, U.S. Department of Commerce and other resources to assist U.S. firms in market entry endeavors, and contacts in the United States and China.

The report is based on bilateral meetings conducted in China and the United States over the course of the past several years, as well as market research and analysis undertaken in China in June 2002 by international trade specialists from the Information Technology Industries unit of Trade Development within the Commerce Department's International Trade Administration (ITA): Tu-Trang Phan and Jeffrey Rohlmeier of the Office of Information Technologies and Electronic Commerce, and John Henry of the Office of Telecommunications Technologies. They interviewed software, Internet, and telecommunications equipment producers and services providers, trade associations, industry analysts, IT end-users, and government officials in China. The work was actively supported by market specialists in ITA's Commercial Service (US&FCS) in China. Information gathered from on-site interviews was supplemented with data from market research firms and an extensive review of available literature.

The information in this report was accurate to the best of our knowledge at the time of drafting in March/April 2003. Certain changes to China's government structure resulting from the March 2003 National People's Congress may not have been known at the time this report was published and could not be incorporated in this report. A supplement to this report may be prepared at a later date to reflect new information.

## **EXECUTIVE SUMMARY**

**W**ith 1.3 billion inhabitants, China is the most populous country in the world. It also has a booming economy that has brought economic stability to a region recently plagued by a financial crisis in 1997 and Japan's economic woes. China had an increase in Gross Domestic Product (GDP) of 8 percent in 2002 to \$1.2 trillion and a GDP per capita of \$1,000, the highest China has ever had in its economic history. Increased foreign investment and exports are among the drivers for the country's continued economic growth. Foreign Direct Investment in the information technology (IT) sector has been instrumental in China's economic expansion. The privatization and reform of state-owned enterprises as well as China's accession to the World Trade Organization (WTO) in December 2001 are expected to attract more foreign investment and reduce unemployment, currently at 4 percent.

### **IT Industry**

The IT industry remains a pillar industry for the nation and should have a value-added output exceeding \$76 billion in 2003. The Chinese government is very supportive of developing China's information industry and addressed this development for the first time in its Tenth Five Year Plan (2001-2005). The plan includes proposals to accelerate electronic commerce (e-commerce) development and promote the use of information technology in sectors such as banking, finance, taxation, and trade as well as in rural areas. The plan also calls for reform of state-owned enterprises, promotion of science and technology research, promotion of the development of the software and integrated circuit industries, and the improvement of China's information infrastructure. The Chinese government is establishing three new high-tech "belts" located in the Zhujiang River Delta in South China, the Yangtze River Delta region in Jiangsu province, and across Beijing to expand electronics production. Since 1997, the government has doubled its expenditure to \$13 billion to promote science and technology research and development, compared to the previous five-year period. It believes the information industry will continue to grow at a rate three times faster than that of the national economy. By 2005, the Chinese government expects that the industry will account for over seven percent of GDP, of which telecommunications will represent 4.7 percent and electronic products the remaining 2.5 percent.

### **Telecommunications Market**

According to the Ministry of Information Industry (MII), China will have an additional 33 million fixed phone and 52 million mobile phone subscribers this year and record \$198 billion in sales of information products. It will also continue to invest more than \$25 billion in fixed assets in the telecommunications sector. China's telecommunications network growth has exploded since

1990. With 214 million wireline subscribers and 207 million mobile subscribers as of year-end 2002, China now boasts the largest wireline and wireless networks in the world. This tremendous growth can be attributed to a number of factors. The Chinese government has made telecom and IT development a national priority and enacted preferential policy initiatives to promote telecommunications modernization. As China's economic development has progressed, it has generated increased demand for additional communications services and equipment. The rise in living standards has also made it possible for a growing number of Chinese citizens to afford telephones. Finally, technological advances have contributed to network expansion by making available better equipment at lower prices.

The Chinese telecom services market has been gradually restructured over the past decade. The former Ministry of Post and Telecommunications' (MPT) monopoly status through China Telecom ended in 1994 when the China State Council approved the creation of China United Telecommunications, or China Unicom. It also established China Jitong Corporation in that year as a data communications supplier and charged it with developing a national "information highway" network, which was known as the Golden Bridge Network. Further industry restructuring occurred in 1999 when the Ministry of Information Industry (MII), which had been created by a merger of the MPT and the Ministry of Electronics Industry (MEI) the year before, spun off China Telecom's wireless network into a new entity, China Mobile, and its satellite operations into China Satellite. MII also launched China Netcom later that year as China's third telecom service provider and gave the Ministry of Railways a license in 2000 to provide all basic telecommunications services, except mobile services, through the newly-established China Railway Telecom. The State Council split China Telecom again in May 2002, allowing the company to retain its local loop networks in twenty-one of China's southern provinces and municipalities, and combining China Netcom and China Jitong into a much larger China Netcom which would handle the local loop networks in ten northern provinces and municipal areas. The revenues of China's telecom services providers were more than \$55 billion at year-end 2002 after the restructuring concluded. China Mobile, the dominant player in mobile services with about two-thirds of the subscriber base, held over 37 percent of this total while China Telecom, the leading wireline provider, had a 33 percent share.

China has one of the most competitive telecommunications equipment markets which, along with the explosive growth of the country's telecommunications networks, has drawn all of the major international equipment suppliers to establish joint venture manufacturing operations there since the 1980s. At the same time, the Chinese government has fostered the development of Chinese manufacturers through a wide range of tariff and non-tariff barriers (requirements that foreign suppliers establish joint ventures with Chinese partners, build manufacturing plants in China, transfer technology, and offset their imports of component parts with exports of finished products from the factory). Chinese manufacturers now compete more vigorously with foreign companies not only in the Chinese market, but also in third-country markets.

U.S. telecommunications equipment exports to China have risen at an average annual rate of 8 percent each year since 1993, reaching a peak of \$1.1 billion in 2001. However, U.S. imports of

these products from China grew more than twice as fast (19 percent) each year during this same period to \$ 3.2 billion. By year-end 2002, U.S. telecommunications equipment exports fell sharply, losing over a third of their value, while imports from China increased by nearly \$1.4 billion. These significant changes in trade have led to a steadily worsening U.S. telecommunications product trade deficit with this country.

There is currently intense interest and speculation surrounding China's plans for third generation (3G) wireless technologies with three standards under evaluation by MII. The Chinese view WCDMA as a "European" standard, CDMA-2000 as an "American" one, and TD-SCDMA as "Chinese." MII has indicated that it will issue four 3G licenses to Chinese wireless services providers and will allow each operator to choose its preferred standard. However, most observers believe that pressure will be exerted on at least one operator to go with the Chinese TD-SCDMA standard. The stakes will be very high, not only for operators, but for equipment vendors.

## **IT Market**

China is one of the world's fastest growing IT markets and has surpassed Australia to become the Asia-Pacific region's second largest IT market after Japan. According to International Data Corporation (IDC), China's market for IT products and services reached \$22 billion in 2002 and is expected to exceed \$40.2 billion by 2006, representing nearly a 16.3 percent compound annual growth rate (CAGR) during these years. In 2002, hardware accounted for 73 percent of this overall market, followed by packaged software (10 percent) and IT services (17 percent). The Chinese government's emphasis on expanding the use of information technologies in schools, public sector agencies, and businesses has led to increased spending on computer equipment and should continue to affect demand in the future. Personal computers (PCs) have been a major focus of China's IT hardware spending activity. In 2001, China ranked fourth in the world for its installed base of PCs, ranked third in the world for its installed base in the government and education market segments, and sixth in the home segment. Due to industrial policies that have stimulated the development of China's computer hardware industry, domestic manufacturers have captured more than 70 percent of Chinese PC sales while U.S. suppliers have held much of the remainder. China's PC server, handheld computer device, and storage market segments are also expected to have high growth rates through 2006.

The volume in IT hardware trade between the United States and China has nearly tripled between 1998 and 2002. As in telecommunications equipment, U.S. computer exports to China have grown much more slowly than imports from that country—a CAGR of only 2 percent versus 34 percent—leading to a significant U.S. trade deficit with China in this product area. In 2002, the United States exported \$579 million of IT hardware to China, making it the ninth largest customer for these exports. However, in that same year, China became the largest foreign supplier of computer equipment to the United States with its shipments totaling over \$9 billion. China's accession to the World Trade Organization (WTO) in December 2001 will contribute to



boosting this trade between the two countries by allowing U.S. and Chinese IT firms to take advantage of tariff reductions on certain IT hardware and to be subject to the same legal and regulatory requirements and benefits as domestic suppliers.

China has emerged as the second largest IT hardware producer in the world behind the United States and is followed by Japan and Taiwan, in that order. China's IT hardware output doubled between 1999 and 2002 due to China's lower production and labor costs, investment incentives, and relatively reliable infrastructure. U.S., Japanese, and especially Taiwanese suppliers have established a manufacturing presence in China to gain market access, but domestic firms, such as the Legend and Founder Groups, now present a significant competitive challenge to the foreign subsidiaries as a result of aggressive pricing tactics and their close-knit relationships with government buyers.

Although much smaller than the IT hardware sector, China's software market has been growing much more rapidly and should increase to more than \$5 billion by 2006, according to IDC. The main drivers behind this growth will be China's successful bid for the 2008 Olympic Games and its membership in the WTO. Most of the software purchases in China have been in the low-end applications (e.g., accounting and financial management software) market segment which domestic suppliers dominate. However, as more Chinese consumers become exposed to international technology trends, China's demand will become more sophisticated and move toward high-end applications (e.g., enterprise resources planning, customer relationship management, and supply chain management software) that foreign firms currently control. Other segments that have piqued the interest of Chinese end-users include IT security solutions, the Linux operating system, and applications developed for the Linux open source platform.

The Chinese government has recognized that China's software industry lags significantly behind world market leaders and shifted its industrial policies to favor the development of domestic software capabilities. It has issued a number of policies ranging from export incentives to value-added tax rebates and financial assistance to small businesses and established eleven software development bases in relatively large cities, near universities and scientific institutions. China will attempt to increase its software industry's sales from approximately \$4 billion in 2001 to \$31 billion by 2005 and more than double its share of the world software market to 3 percent during the same period. To meet this goal, China's software industry will have to control over 60 percent of the domestic market, export \$3 billion worth of products and services annually, and train 20,000 to 30,000 software professionals each year. The government has also promulgated laws addressing intellectual property protection since China has the second highest software piracy rate in the Asia-Pacific region and must attack this problem if it is to achieve its objective of creating a world-class software industry. Additional obstacles it must overcome are the relative poor quality of Chinese software developers and the lack of an entrepreneurial culture in China that fosters innovation.

China's market for IT services is expected to reach \$4.7 billion in 2003, representing an increase of nearly 25 percent over the previous year. In the next four years, China's IT services market is expected to reach \$11.7 billion, growing at CAGR of nearly 26 percent between 2003 and 2007. Implementation services represent the largest proportion of IT services market in China, followed by operations management services. While IT services represents a relatively small portion of the total IT market compared to hardware, this segment is expected to grow substantially as the notion of procuring IT services becomes more widely accepted in China.

### **Growth of the Internet**

Use of the Internet in China has been expanding rapidly. The number of Internet users grew from only 15,000 in 1995 to 59 million (or 5 percent of China's population) by January 2003. Most of these users currently access the Internet through a dial-up connection. However, Strategy Analytics, a market research firm, predicts that nearly 37 million homes will have a broadband connection by 2008. The increasing availability of broadband and cheaper charges for Internet access will be the key drivers to the development of China's Internet in the future. One major barrier to the growth of Internet use could be the Chinese government's continuing regulation of content.

### **Electronic Commerce**

With its extremely large population, China may have the greatest potential of all Asia-Pacific countries to experience exponential growth in electronic commerce (e-commerce). China has not only had a dramatic increase in Internet use, but also in the number of electronic businesses (e-businesses) established. In fact, an estimated 78 percent of all Chinese websites are now operated by "enterprises" and 5 percent by "businesses."<sup>1</sup> However, despite these developments, only 31 percent of Internet users in China are now purchasing goods and services online. Moreover, only 11 percent of Chinese "enterprise" websites and 45 percent of Chinese "business" websites offer "e-commerce services." Among the reasons why Chinese businesses and consumers are not yet buying online are: the use of credit payment systems is not widespread; online merchants are not yet fully trusted; the security of electronic payments cannot be guaranteed; and delivery systems are inefficient throughout most of the country. China has also yet to develop a legal, regulatory, or policy framework conducive to the rapid growth of e-commerce. Laws recognizing the validity of "e-contracting" tools and stressing the importance of online security have been proposed, but not fully implemented.

Nevertheless, despite these challenges, the prospects for the expansion of e-commerce in China are good. While e-business in other countries has suffered due to the recent global economic downturn, some observers have estimated that China's e-commerce sector (business-to-business

---

<sup>1</sup> CNNIC, Survey Report on the Quantity of China's Internet Information (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>. According to CNNIC, "'business' websites refers to those fictitious network-like websites, e.g., such '.com' companies as sina and sohu. 'Enterprise' websites are opposite to the business websites— those founded by enterprises whose operation is mainly off- line."

and business-to-consumer) may grow from around \$16 billion in 2002 to \$99 billion in 2006. The Chinese government has taken action to encourage more businesses and consumers to go online by stepping up its national “informatization” campaign and to continue its efforts to construct an appropriate framework for e-commerce to flourish. Its efforts to expand online education services (e-learning) and to institute electronic government (e-government) have been largely successful as well.

## **WTO Accession**

Through its accession to the WTO, China has committed to wide-ranging reforms affecting trade in IT and telecommunications equipment that should result in better access for foreign suppliers to the Chinese market. These reforms include agreeing to sign the Information Technology Agreement (ITA), thereby eliminating tariffs on all products covered by it (see Appendices); to allow imports and distribution of most products, particularly those covered by the ITA, into any part of China; and to remove quotas and local content, technology transfer, and export performance requirements. China also agreed to allow an increased level of foreign investment and/or open a larger geographic area to foreign participation through a staged implementation plan for its IT, Internet, and telecommunications services markets. For example, in the telecommunications services area, it will allow 50 percent foreign participation in value-added services two years after accession, 49 percent in mobile voice and data services five years after accession, and 49 percent in domestic basic services six years after accession. The Chinese government has further committed to undertake the pro-competitive obligations contained in the Reference Paper of the WTO Agreement on Basic Telecommunications Services, such as establishing an independent regulator, defining interconnection rights, and prohibiting anti-competitive practices. China’s accession to the WTO should stimulate greater foreign competition and investment in China’s e-commerce market as well which will spur the development and introduction of more efficient mechanisms for online payment, delivery, and security.

## **Market Opportunities**

U.S. information and communications technology (ICT) exporters may find substantial market opportunities in China, but they also will face tremendous challenges. While their products are generally well regarded in this country, U.S. firms must compete with offerings from European, Japanese, Korean, Taiwanese, and Canadian companies as well as those of local Chinese manufacturers. As previously noted, local firms benefit from a variety of Chinese government policies that are designed to foster the development of an indigenous ICT industry. China’s accession to the WTO has helped to reduce or eliminate many of the market access barriers by U.S. exporters, but significant hurdles still remain.

In the telecommunications area, the build-out of 3G wireless networks will offer opportunities not only for U.S. telecommunications equipment vendors, but also for companies supplying a wide range of associated software applications, including roaming, billing, and user applications

packages. China's accession to the WTO has opened new opportunities for U.S. telecommunications service providers to invest in a Chinese market that had previously been closed to foreign participation. However, U.S. telecommunications firms should note that this market opening has been staged and that they should target value-added services first since this sector will open the fastest and will have the highest investment limit.

Four key factors are opening significant opportunities for U.S. IT hardware and software suppliers to take advantage of China's vast consumer market. These are: 1) the government's informatization drive, as stated in its Tenth Five-Year Plan, to spread the use of information technologies among communities, government agencies, and China's traditional industries; 2) the "Go West" campaign to narrow the digital divide between Eastern and Western China; 3) China's accession to the WTO; and 4) the 2008 Beijing Olympic Games and its particular focus on high-tech applications.

According to IDC, China's increase in e-government spending of nearly 40 percent annually between 2001 and 2003 provides U.S. IT firms with the opportunity to introduce solutions that will help the national, provincial, and municipal governments offer online services to their citizens. These solutions include networking hardware and software, Chinese language database software, Chinese language content management tools, portal software, and network security solutions. Thanks to the market opening resulting from China's membership in the WTO, U.S. IT suppliers will have new business prospects in traditional industries, such as manufacturing and banking, that need to upgrade their systems to become competitive internationally. These industries will require solutions (e.g., enterprise resource planning, customer relationship management, and supply chain management packages) that will help them become more efficient in delivering products to customers and receiving inputs from their suppliers. U.S. IT companies should take advantage of China's rapidly growing market for IT services by not only targeting the traditional industries, but also by assisting state-owned enterprises to increase their competitiveness through selecting the right combination of equipment and software.

U.S. IT suppliers should benefit from the \$24 million investment that China's Ministry of Science and Technology is making to bridge the country's digital divide through the wide variety of programs that are a part of the "Go West" Initiative. IT solutions companies will be needed to educate communities, local governments, and businesses in Western China in various uses of information technologies and to train citizens on how to use computers and the Internet. Because of the large rural economy in this region, U.S. software firms will find substantial demand for Chinese-language software targeted at the agricultural sector and packages that would help farmers distribute their products more efficiently throughout China. In addition, U.S. Internet content providers will have an opportunity to develop Chinese-language content to increase the use of the Internet, especially for educational purposes in schools and hospitals, in Western China.

China's successful bid for the 2008 Beijing Olympics will present U.S. IT companies with enormous opportunities to sell their equipment, software, and services. The IT projects envisioned by the municipal government of Beijing will require a wide range of products such as smart card technologies, broadband applications, database applications, e-commerce platforms, network security solutions, simulation software, games software relating to Olympic sports, and voice recognition software.

Finally, in the area of e-commerce, China's business-to-business market should continue to offer U.S. IT firms the best prospects for exports. Demand for U.S. web developers, web hosting services providers, and e-commerce consultants is particularly high. E-commerce products and services localized for the Chinese users should enjoy the most success.

U.S. suppliers interested in pursuing opportunities in China's ICT markets should recognize the differences in business and cultural styles between the United States and China and develop an appropriate market entry strategy. Some form of local presence is essential. Options include using agents and distributors; partnering with large IT firms, systems integrators, or consultants; partnering with like-minded Chinese small and medium-sized enterprises (SMEs) with complimentary skills or products; or setting up a local office staffed by local employees to do marketing and training and to provide ongoing support. Even though China is a very large market of 1.3 billion people, it is essential that businesses understand consumer behavior in the provinces/regions they are targeting. For example, spending patterns and needs of ICT end-users in the Pearl River Delta Region are very different from those of end-users in the Yangtze River Delta Region and from those in Western China. Regardless of the market entry strategy, a variety of organizations, both public and private, can help U.S. ICT SMEs enter or expand their presence in China.

## **TERMS AND ABBREVIATIONS**

<b>\$</b>	Unless otherwise noted, dollar figures cited in this report are U.S. dollars
<b>2G</b>	second generation (mobile communications)
<b>2.5G</b>	intermediate generation of mobile communications between 2G and 3G
<b>3G</b>	third generation (mobile communications)
<b>ADSL</b>	asymmetrical digital subscriber line
<b>AMPS</b>	advanced mobile phone service
<b>APEC</b>	Asia Pacific Economic Cooperation
<b>AQSIQ</b>	State General Administration of Quality Supervision, Inspection, and Quarantine
<b>ARPL</b>	average revenue per line
<b>ARPS</b>	average revenue per subscriber
<b>ARPU</b>	average revenue per unit
<b>ASP</b>	application service provider
<b>ATM</b>	asynchronous transfer mode
<b>B2B</b>	business-to-business e-commerce
<b>B2C</b>	business-to-consumer e-commerce
<b>BDIC</b>	Business Development and Industrial Cooperation (Working Group of JCCT)
<b>CAGR</b>	compound annual growth rate
<b>CCC</b>	China Compulsory Certification
<b>CDMA</b>	code division multiple access
<b>CERNET</b>	China Education and Research Network
<b>CERT</b>	computer emergency response team
<b>CNCA</b>	Certification and Accreditation Administration of China
<b>CNNIC</b>	China Internet Network Information Center
<b>CORBA</b>	Common Object Request Broker Architecture
<b>CRM</b>	customer relationship management
<b>CSTNET</b>	China Science and Technology Network
<b>DSL</b>	digital subscriber loop
<b>ECBA</b>	E-commerce Business Alliance
<b>ECSG</b>	E-commerce Steering Group
<b>ECOTECH</b>	Economic and Technical (Cooperation in the Field of E-commerce)
<b>EDGE</b>	enhanced data for GSM evolution
<b>EDI</b>	electronic data interchange
<b>EMS</b>	enhanced messaging service
<b>ERP</b>	enterprise resource planning
<b>FCC</b>	Federal Communications Commission
<b>FDI</b>	foreign direct investment

<b>FITE</b>	foreign invested telecommunications enterprises
<b>G2B</b>	government-to-business e-commerce
<b>GDP</b>	gross domestic product
<b>GPA</b>	Government Procurement Agreement
<b>GPRS</b>	general packet radio service
<b>GPS</b>	global positioning system
<b>GSM</b>	global system for mobile communications
<b>HDTV</b>	high definition television
<b>HDSL</b>	high bit rate digital subscriber line
<b>IC</b>	integrated circuit
<b>ICP</b>	Internet content provider
<b>ICT</b>	information and communications technologies
<b>IDC</b>	International Data Corporation
<b>II</b>	information industry
<b>IP</b>	Internet protocol
<b>IPO</b>	initial public offering
<b>IPR</b>	intellectual property rights
<b>IP/VPN</b>	Internet protocol-based virtual private network
<b>ISA</b>	industry sector analysis
<b>ISDN</b>	integrated services digital network
<b>ISO</b>	International Organization for Standardization
<b>ISP</b>	Internet service provider
<b>IT</b>	information technology
<b>ITA</b>	Information Technology Agreement
<b>ITA</b>	International Trade Administration
<b>ITU</b>	International Telecommunications Union
<b>JCCT</b>	Joint Commission on Commerce and Trade
<b>kpbs</b>	kilobits per second
<b>LAN</b>	local-area network
<b>MEI</b>	Ministry of Electronic Industry
<b>MFN</b>	most favored nation
<b>MII</b>	Ministry of Information Industry
<b>MMS</b>	multimedia message service

## *Information Technology Industries*

<b>MNC</b>	multinational corporation
<b>MOFTEC</b>	Ministry of Foreign Trade and Economic Cooperation
<b>MOST</b>	Ministry of Science and Technology
<b>MPS</b>	Ministry of Public Security
<b>MPT</b>	Ministry of Posts and Telecommunications
<b>MVNO</b>	mobile virtual network operator
<b>NPC</b>	National People's Congress
<b>NTDB</b>	National Trade Data Bank
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>OMG</b>	Object Management Group
<b>PC</b>	personal computer
<b>PDA</b>	personal digital assistant
<b>PRC</b>	People's Republic of China
<b>R&amp;D</b>	research and development
<b>RMB</b>	RenMinBi (Chinese currency unit, 1 RMB = 1 Yuan; approximately 8.2 RMB or Yuan = U.S. \$1)
<b>SAC</b>	Standardization Administration of China
<b>SARFT</b>	State Administration for Radio, Film, and Television
<b>SCITO</b>	State Council Informatization Office
<b>SCM</b>	supply chain management
<b>SDPC</b>	State Development Planning Commission
<b>SETC</b>	State Economic and Trade Commission
<b>SI</b>	systems integrator
<b>SIM</b>	subscriber identification module (as in smart cards)
<b>SIPO</b>	State Intellectual Property Office
<b>SME</b>	small and medium-sized enterprise
<b>SMR</b>	special mobile radio
<b>SMS</b>	short message service
<b>SOE</b>	state-owned enterprise
<b>SPPA</b>	State Press and Publication Administration
<b>TBT</b>	Technical Barriers to Trade Agreement
<b>TEL</b>	Telecommunications and Information (Working Group under APEC)
<b>TDMA</b>	time division multiple access
<b>TD-SCDMA</b>	time division synchronous code division multiple access
<b>TRIMS</b>	trade-related investment measures
<b>TRIPS</b>	trade-related intellectual property rights
<b>UMTS</b>	universal mobile telecommunications system
<b>USEAC</b>	U.S. Export Assistance Center



<b>USITO</b>	U.S. Information Technology Office
<b>USTR</b>	Office of the U.S. Trade Representative
<b>VAS</b>	value-added services
<b>VAT</b>	value-added tax
<b>VC</b>	venture capitalist
<b>VOIP</b>	voice over Internet protocol
<b>VSAT</b>	very small aperture terminal
<b>WAN</b>	wide-area network
<b>WAP</b>	wireless application protocol
<b>WLAN</b>	wireless local area network
<b>WLL</b>	wireless local loop
<b>WTO</b>	World Trade Organization
<b>Yuan</b>	Chinese currency unit; see also “RMB”
<b>Y2K</b>	Year 2000

---

## CHAPTER 1: CHINA -- ECONOMIC AND POLITICAL OVERVIEW

---

### INTRODUCTION — CHINA'S ECONOMY IS GROWING AT 8 PERCENT

**W**ith 1.3 billion inhabitants, China is the most populous country in the world. Roughly one out of five people live in China. The country's expanding economy has brought economic stability to a region that was plagued with a financial crisis in 1997 and the stagnation of the Japanese economy.

According to China's State Statistical Bureau, China's economy grew 8 percent in 2002, compared to 7.3 percent in 2001. China's Gross Domestic Product (GDP) is estimated to be \$1.3 trillion in 2002 and GDP per capita to be \$1000, which is the highest it has ever been in China's economic history. Increased foreign investment and exports are among the drivers for the nation's continued economic growth. Foreign Direct Investment (FDI) in the information technology (IT) sector has been instrumental in China's economic expansion. For example, Motorola (United States) is China's largest single company foreign investor with investment totaling \$3.4 billion. Its facilities include a \$1.9 billion semiconductor plant in Tianjin and a telecommunications manufacturing plant in Hangzhou. The company plans to invest a total of \$10 billion in China by 2006.

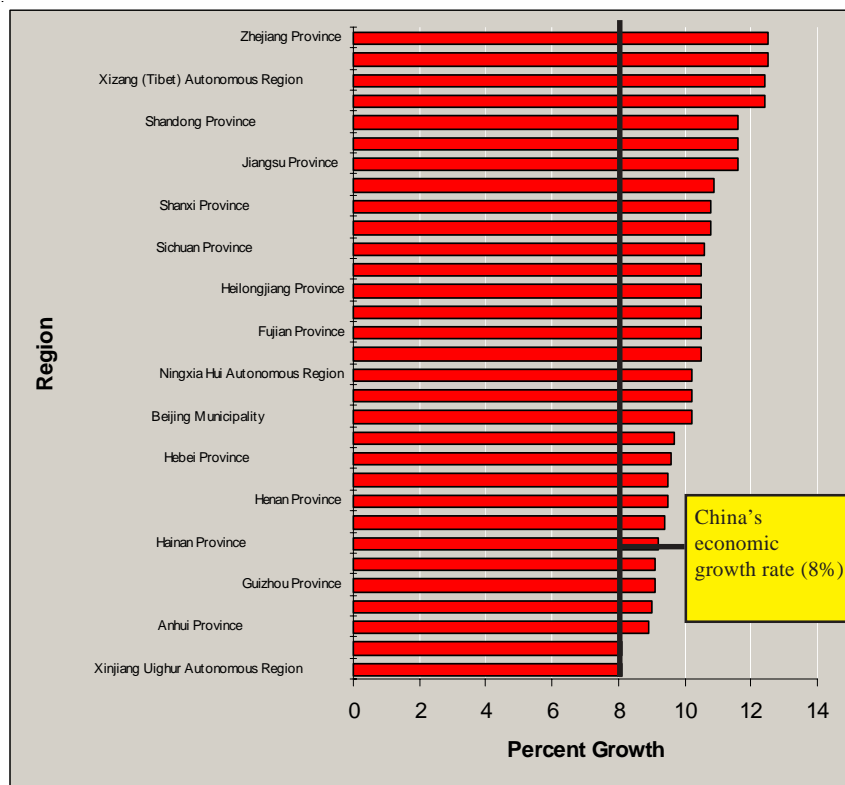
The State Development Planning Commission speculates that if China can maintain economic growth at 7 percent, GDP per capita will rise to \$1200, improving the quality of life significantly for the nation's citizens. There is no question China's economy is expanding, but many economists are skeptical about the real rate of growth being as high as reported. In 2002, thirty-one provincial authorities and municipalities reported growth figures that exceeded the national average (Figure 1-1).

China's leaders still face challenges as the country continues to transition from a centrally planned to a market-based economy. The unemployment rate is becoming a problem, rising from 3.1 percent in 2000 to 4 percent in 2002. The privatization and reform of state-owned enterprises as well as China's accession to the World Trade Organization (WTO) in December 2001 will attract more foreign investment and create more employment for the population as a whole.

### *IT is still a pillar industry.*

The IT industry continues to be a pillar industry for the nation. China's IT industry's value-added output is expected to exceed \$76 billion in 2003. According to the Ministry of Information Industry, China will have an additional 33 million fixed phone and 52 million mobile phone subscribers this year, and sales of electronic information products will reach \$198 billion. China will continue to invest in excess of \$25 billion in fixed assets in the telecommunications sector.

**Figure 1-1: China's National Economic Growth Rate Compared to Growth Figures Reported by 31 Regions, 2002**



Source: Bloomberg News, 2003

### ***Political changes in 2003***

The National Party Congress is the Communist Party of China's (CPC) legislature and leading authority. The Congress is convened by the Central Committee and is held once every five years. Since its inception in 1921, the CPC has met sixteen times. The most recent meeting took place in November 2002. The Standing Committee convenes the National People's Congress (NPC) during the first quarter of each year. The NPC has the authority to enact and amend the Constitution of the People's Republic of China, to select and remove leadership positions within the Chinese government, to formulate policy, and to supervise the implementation of the Constitution. The most recent meeting of the NPC occurred in March 2003.

During the National Party Congress, the Communist Party appointed Vice President Hu Jintao to replace Jiang Zemin as General Secretary and he was confirmed as the new President during the National People's Congress (Table 1-1). This is the first change in General Secretary leadership in thirteen years. In addition to confirming Vice President Hu's appointment as President, the Congress also announced Vice Premier Wen Jiabao as Premier Zhu Rongji's successor, and Vice Premier Wu Bangguo to replace Li Peng as NPC Chairman.

For the IT and telecom sectors, Wang Xudong, former Communist Party Chief of Hebei Province, was appointed Party Secretary of the Ministry of Information Industry (MII) in November 2002 and was named to replace Minister Wu Jichuan as the Minister of Information Industry in March 2003. The development of the IT and telecommunications industries will continue to be a priority for China's leaders.

**Table 1-1: China's Politburo Standing Committee**

Position	Old Leadership	New Leadership
President and General Secretary	Jiang Zemin	Hu Jintao
Premier	Zhu Rongji	Wen Jiabao
Communist Party Affairs Chief		Zeng Qinghong
NPC Chairman	Li Peng	Wu Bangguo
First Vice-Premier in charge of the economy		Huang Ju
Secretary of the Political and Legal Affairs Commission		Luo Gan
Chairman of the Chinese People's Political Consultative Conference	Li Ruihuan	Jia Qinglin
Central Commission for Disciplinary Inspection	Wei Jianxing	Wu Guanzheng
Politburo Standing Committee Member	Li Lanqing	Li Changchun

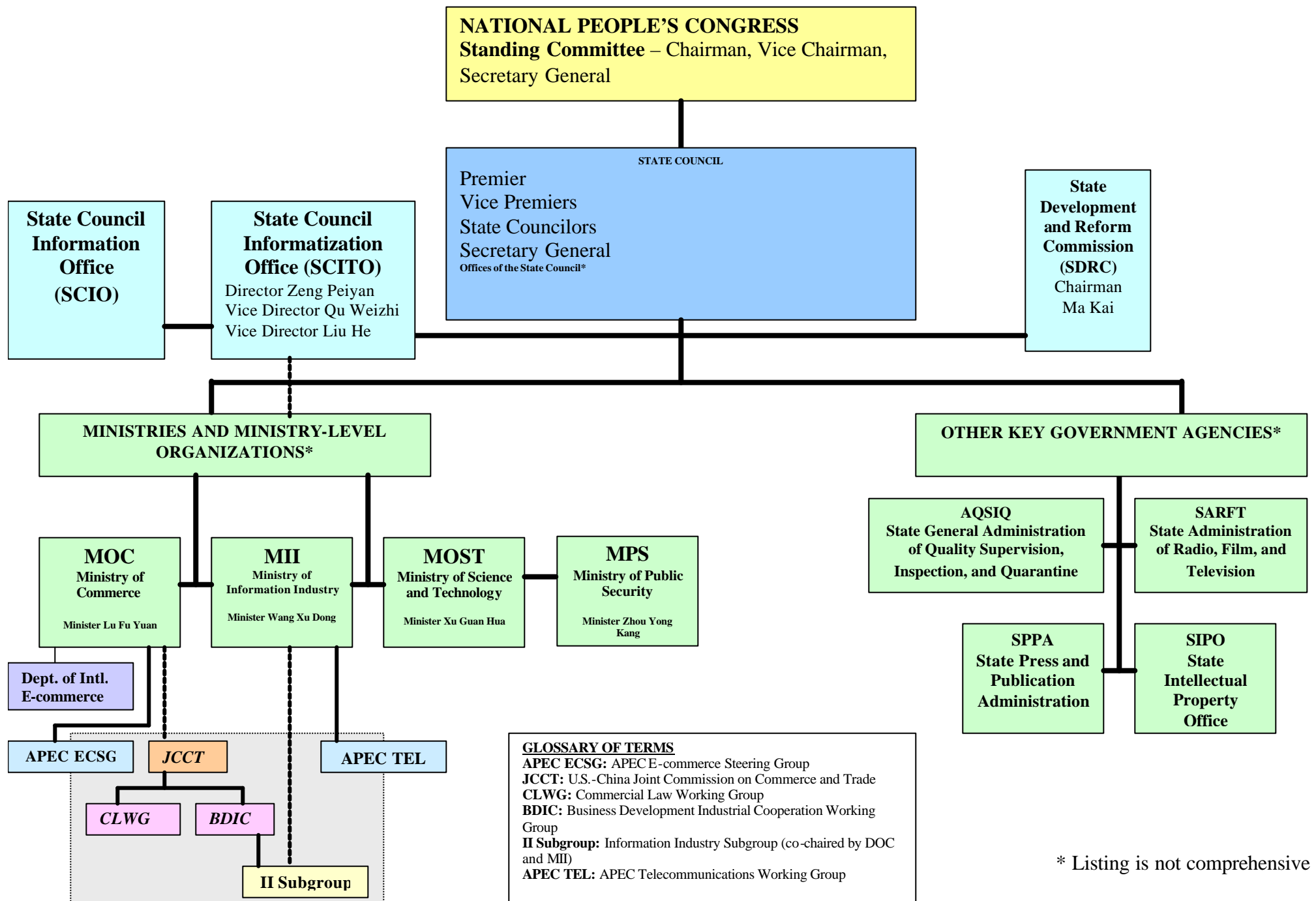
## GOVERNMENT AGENCIES INVOLVED IN THE HIGH-TECH SECTOR

There are at least ten Chinese government bodies influencing the development of the IT sector in China (Figure 1-2). Many of these agencies have broader responsibilities beyond the ICT and Internet sectors, but the brief descriptions below are limited to their relationship to the ICT industry.

**Ministry of Information Industry (MII)** – MII is responsible for regulating ICT products and services. The ministry was created in 1998 as a result of a merger between the former Ministry of Electronics Industry (MEI) and the Ministry of Posts and Telecommunications (MPT). MII develops policies to promote the development of the information technology and telecommunications industries, tests and administers approval marks for products that affect the nation's telecommunications networks, issues licenses for basic and value-added telecommunications services, and regulates IT products. The provincial telecommunications authorities and municipal government's IT offices also report to MII, as well as their respective local government authorities.

**Ministry of Science and Technology (MoST)** – The Ministry of Science and Technology is responsible for developing national policies for science and technology development, supporting the commercialization of new technologies, promoting technology innovation, and administering

**FIGURE 1-2: PARTIAL ORGANIZATION CHART ON PRC GOVERNMENT AGENCIES INVOLVED IN INFORMATION AND COMMUNICATIONS TECHNOLOGIES**



China's high-tech programs, such as the Torch and Spark Programs. Like MII, MoST also has science and technology offices throughout the provincial and municipal regions that report to both the local government and to MoST in Beijing.

**State Council Informatization Office (SCITO)** - The State Council Informatization Office (SCITO) was set up in August 2001 as an inter-agency coordinating body to oversee China's regulatory and commercial developments in the information technology and telecommunications sectors and implement the central government's policies and measures that drive informatization. In this capacity, SCITO directs and supervises all relevant ministries that affect these developments. This office is the executive body for the State Informatization Steering Group headed by Premier Zhu Rongji. The Steering Group focuses on policy planning, applications promotion and network security. Its chair is Zhu Rongji and five vice-chairs are Hu Jintao, Li Lanqing, Wu Bangguo, Ding Guan'gen, and Zeng Peiyan. SCITO also has municipal level informatization and IT offices throughout China that focus on implementing informatization programs.

**Ministry of Public Security (MPS)** – The Ministry of Public Security is responsible for security of computer and communications networks. The Ministry also regulates the development and sale of network security products and encryption technologies in China. The local bureaus of MPS, referred to as Public Security Bureaus, control the distribution of “harmful” content by monitoring Internet Service Providers as well as Internet cafes.

**State Development Planning Commission (SDPC)**<sup>1</sup> – SDPC was created in 1998 as an outgrowth of the State Planning Commission. SDPC develops policies to stimulate China's economic and social development, formulates pricing policies, and approves all major IT projects. SDPC officials also drafted China's Tenth Five-Year Plan, which serves as the blueprint for China's economic and social development from 2001 to 2005. See following section on Tenth Five-Year Plan for more details on China's IT-specific goals.

**State Economic Trade Commission (SETC)**<sup>2</sup> – SETC is responsible for assisting in the restructuring and reform of state-owned enterprises and approving the establishment of trade associations in China. In addition, SETC has an office focused on providing assistance to small-to medium-sized enterprises (SMEs) and promoting informatization among SMEs in rural and urban regions of China.

**Ministry of Foreign Trade and Economic Cooperation (MOFTEC)'s<sup>2</sup> E-commerce Administration Department** – MOFTEC's E-commerce office is responsible for coordinating e-commerce regulations and policies throughout the Chinese government. For example, MOFTEC is responsible for drafting China's e-signature legislation. MOFTEC's E-commerce office represents China in the Asia Pacific Economic Cooperation's (APEC) E-Commerce

---

<sup>1</sup> At the National People's Congress (NPC) meeting in March 2003, SDPC was renamed the State Development and Reform Commission and given the responsibility for the nation's economic restructuring.

<sup>2</sup> At the March 2003 NPC meeting, SETC and MOFTEC were merged into a new Ministry of Commerce.

Steering Group (ECSG) and China's interests on e-commerce issues within multinational fora. MOFTEC's WTO office is also the inquiry point for China's WTO compliance efforts.

**State Intellectual Property Office (SIPO)** – SIPO is responsible for drafting and publishing policies relating to patents and intellectual property rights (IPR) and is also the primary agency for international cooperation on IPR-related matters.

**National Copyright Administration (NCA)** – NCA is responsible for copyright administration and enforcement. NCA is also responsible for nationwide copyright issues, including investigating infringement cases, administering foreign-related copyright issues, developing foreign-related arbitration rules and supervising administrative authorities.

**State Press and Publication Administration (SPPA)** – SPPA investigates copyright infringements and censors content in publications, including Internet publishing. In January 2000, the SPPA began drafting rules on Internet news content that required private news websites to obtain permission before publishing news stories not already published by official news organizations. In addition, portals were forbidden from providing links to outside news sources such as those in Hong Kong and Taiwan. In August 2002, MII and SPPA jointly issued the *Provisional Measures on the Management of Internet Publications*. Internet publishers are now required to receive approval from SPPA before publishing their content online. SPPA is also responsible for monitoring their online contents according to the relevant laws and regulations in China.

**State Administration for Radio, Film, and Television (SARFT)** – SARFT is responsible for controlling content on radio, film, and television as well as access to satellite and cable networks. SARFT also oversees the operation of China Central Television (CCTV), China's national TV network.

**State General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)** – AQSIQ administers China's entry-exit commodities inspection and implements certification, accreditation, and standardization regulations. The Standardization Administration of China (SAC), administratively under AQSIQ, develops national standardization policies and represents China at the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and other international standardization organizations. The Certification and Accreditation Administration of China (CNCA), also administratively under AQSIQ, enforces policies governing the import and export of IT-related products and issues the China Compulsory Certification (CCC) mark for 21 IT and telecom products.<sup>3</sup> AQSIQ officials represent China at meetings on the WTO Agreement on Technical Barriers to Trade (TBT).

---

<sup>3</sup>The following 21 IT and telecom products require CCC mark approval to be imported into and sold in China: Personal computers, Portable personal computers, Display units connected with computer, Printers connected with computer, Multiplying printer & coping machines, Scanners, Switching power supply units for computer and adapters, Chargers, Computer game players, Learning machine, Duplicators, Servers, Finance and trade settlement equipment, Fixed telephone terminal, Cordless telephone terminal, Key-phone system, Facsimile machine, Modem, Mobile terminal, ISDN terminal, Data Terminal, and Multimedia terminal.



***Close relationship between trade associations and government ministries***

The relationship between China's IT-related trade associations and MII is unclear. Many of the former and current senior level Ministry officials also represent industry trade associations in leadership positions (Table 1-2). The trade associations do consist of private sector companies, and the extent to which the industry representatives influence IT policymakers and vice-versa is not clearly defined. Recently, Chinese government officials have shown interest in learning more

<b>Trade Association</b>	<b>Name</b>	<b>Role in Trade Association</b>	<b>Role In Chinese Government</b>
China Information Industry Trade Association (CIITA)	Zhang Qi	Chairwoman	MIIT Director General for Information Products
China Electronic Commerce Association (CECA)	Song Ling	Chairwoman	Former MIIT Director General for Informatization
China Software Industry Association (CSIA)	Chen Chong	President	MIIT Deputy Director General for Software Products
China Semiconductor Industry Association (CSIA)	Yu Zhongyu	President	Chief Engineer at MIIT

about the role of trade associations and how associations are structured in other countries, including the United States.

**Table 1-2: Relationship Between IT Trade Associations and Government Ministries**

***Tenth Five-Year Plan (2001-2005) – Informatization<sup>4</sup> to promote industrialization***

The year 2002 was a monumental one for China's IT and telecommunications industry and market. China has become the world's second largest IT hardware producer, the third largest electronic component and equipment producer, and is the second largest personal computer (PC) market. China has surpassed the United States in having the largest number of wireline and wireless subscribers, making it the fastest growing market for telecommunications services in the world.

The Chinese government is very supportive of developing China's information industry. The government's Tenth Five-Year Plan (2001-2005) will address the development of the country's information industry for the first time. During the Fifth Plenary Session of the 15<sup>th</sup> Central Committee of the Communist Party meeting in 2000, the Party acknowledged the importance of informatization to China's economic and social development by approving the plan. The plan includes proposals to accelerate electronic commerce development and promote the use of

---

<sup>4</sup> "Informatization" is defined as the promotion of the use of information technologies by governments, businesses, and citizens, as well as the support of the information technology industry's growth and development.



information technology in sectors such as banking, finance, taxation, and trade, and to bring these technologies to rural areas. The plan also calls for reform of state-owned enterprises, promotion of science and technology research, promotion of the development of the software and integrated circuit industries, and the improvement of China's information infrastructure.

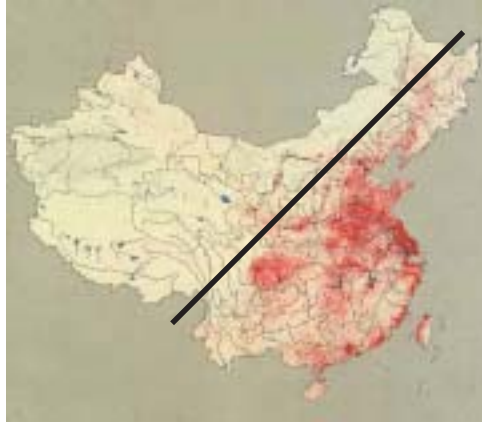
The Chinese government believes that the information industry will continue to grow at a rate three times faster than that of the national economy. By 2005, the government expects the industry to account for 7 percent of GDP, of which the telecommunications industry will represent 4.7 percent, while the electronic products industry will account for 2.5 percent. Table 1-3 summarizes China's goals for its domestic information industry by 2005. A more detailed discussion of what steps the Chinese government has taken to accomplish these goals can be found in the telecommunications chapter (Chapter 2) and the information technology chapter (Chapter 3).

**Table 1-3: China's ICT Product and Service Goals by 2005**

<b>Communications Capacity</b>	
Optical cable	2.5 million km in length
Fixed telephones	300 million subscribers
Wireless network	360 million subscribers
PCs online	40 million
Internet subscribers	200 million
Internet Service Providers (ISPs) and Internet Content Providers (ICPs)	5000
<b>Production Volume</b>	
Integrated Circuits	20 billion pieces
Electronic components	500 billion pieces (of which 80 percent are chips)
Cellular phones	100 million sets
Optical fiber	20 million km
Sales of network equipment	37 billion RMB (approximately \$4.5 billion)
Sales of software	250 billion RMB (approximately \$30.5 billion)
<b>Service Penetration</b>	
Telephone subscription	40 percent penetration rate in China Telephone connection to 95 percent of administrative villages
Fixed telephone subscription	20 percent of world subscribers
Mobile subscription	25 percent of world subscribers
Radio broadcasting and cable TV subscribers	150 million

### ***Western Development Initiative – Bridging the divide between the East and the West***

Most of China's population resides along the eastern coastal region (Figure 1-3). According to the University of Washington, over 90 percent of China's population resides on 40 percent of the land. Half of China's 1.3 billion people are under age 24. More than 98 million of those are under age 5. China has 166 cities with more than a million people. China also has 450 cities with a population of at least 250,000 — compared to 68 cities in the United States with at least a quarter of a million people.

**FIGURE 1-3: CHINA'S POPULATION DENSITY IN 2001**

Source: University of Washington

China's Western region includes twelve provincial administrative regions that account for two-thirds of the land and one-third of the population. While China's economic growth over the past twenty years has been impressive, most of its wealth has been along the Eastern coastal regions of China where the majority of China's population resides. During the period of 1983 to 2001, the Eastern and Southern coastal regions mainly benefited from the \$400 billion of new investment in China. The Eastern region attracted 88 percent of FDI, while the Central and Western regions attracted the remaining nine and three percent, respectively of total FDI<sup>5</sup>. As a result, there is a large income disparity between the two regions. Ninety percent of China's poorest people live in the West. The income gap has widened over the years as well. For example, in Gansu Province, per capita income declined from 84 percent of the national average in 1980 to 56 percent in 1999.

The Chinese government has recognized this disparity and launched a "Go West" campaign in 2000 to help narrow the economic gap between Eastern and Western China. The State Council issued regulations on December 27, 2000, that officially granted preferential policies to Western China for investment, banking, credit, taxation, land and natural resources. Foreign investment in the region is also strongly encouraged, with more favorable policies in the West than in other parts of China. The policies are to be effective for ten years in the provinces of Gansu, Guizhou, Qinghai, Shaanxi, Sichuan, and Yunnan, the municipality of Chongqing, and the autonomous regions of Ningxia, Xinjiang and Tibet. Since 1999, the government has invested more than \$48 billion on infrastructure, environmental protection, and technology-related projects in the West. The government is also revising its income tax policy to increase revenue to the region.

---

<sup>5</sup> Ogutcu, Mehmet, *Getting China's regions moving*, *OECD Observer*, June 26, 2002.

The Ministry of Science and Technology (MoST) will invest another \$24.2 million into programs aimed at narrowing the digital divide between Western and Eastern China. These programs will include public information forums, network education, increasing information technologies in the agricultural sector, and digitization of manufacturing.

### ***Development of an Information Infrastructure through “Golden” Projects***

After several years of planning and supporting the modernization of its economy and science and technology base, China targeted the development of its own national information infrastructure when it launched its five major Golden Projects at the beginning of the Ninth Five-Year Plan (1996 to 2000). The projects were designed to stimulate the nation’s information economy. The initial projects were Golden Bridge, Golden Card, Golden Customs, Golden Tax, and Golden Macro. Other minor projects were proposed covering areas ranging from building materials to public health (Table 1-4).

**Table 1-4: Summary of China’s Golden Projects**

<b>Name</b>	<b>Official Name</b>	<b>Responsible Ministries and Organizations</b>
Golden Bridge	National Public Economic Information Communication Network	Ministry of Electronics Industry <sup>6</sup> , State Information Center, Jitong Company
Golden Card	Electronic Money Project	People’s Bank of China, Ministry of Electronics Industry <sup>6</sup> , Ministry of Internal Trade <sup>7</sup> , Great Wall Computer Company
Golden Customs	National Foreign Economic Trade Information Network Project	Ministry of Foreign Economic Relations and Trade <sup>8</sup> , Customs Department, Jitong Company
Golden Macro	National Economic Macro-Policy Technology System	China Export-Import Bank, Ministry of Finance, State Information Center
Golden Tax	Computerized Tax Return and Invoice System Project	Ministry of Finance, Ministry of Electronics Industry <sup>6</sup> , National Taxation Bureau, Great Wall Computer Company
Golden Sea		State Statistical Bureau, People’s Bank of China, State Information Center
Golden Intelligence	China Education and Research Network (CERNET)	State Education Commission
Golden Enterprise	Industrial Production and Information Distribution System	State Economic and Trade Commission
Golden Agriculture	Overall Agricultural Administration and Information Service System	Ministry of Agriculture
Golden Health	National Health Information Network	Ministry of Health
Golden Information	State Statistical Information Project	State Statistical Bureau
Golden Cellular	Mobile Communications Production and Marketing Project	Ministry of Electronics Industry <sup>6</sup>
Golden Switch	Digital Switch 2000 Switch Systems Production Project	Ministry of Electronics Industry <sup>6</sup> , Ministry of Posts and Telecommunications <sup>6</sup>

**Source: Ministry of Information Industry**

<sup>6</sup> The Ministry of Electronics Industry merged with the Ministry of Posts and Telecommunications in 1998 to form the Ministry of Information Industry. This list of Golden Projects reflects the responsible ministries in 1993.

<sup>7</sup> The Ministry of Internal Trade is now part of the State Economic Trade Commission.

<sup>8</sup> The Ministry of Foreign Trade and Economic Cooperation replaced the Ministry of Foreign Economic Relations and Trade in March 1993.

These efforts are largely under the control of the Ministry of Information Industry and the National Promoting Office of Electronic Information Systems. They have set up Jitong Communications Company, a consortium of 25 Chinese companies, to handle the overall design, planning, and implementation of the projects.

### ***Emerging High-Tech Regions***

According to the MII, China is developing three electronic and information “belts” located in the Zhujiang River Delta in south China, the Yangtze River Delta region in Jiangsu Province, and across Beijing, Tianjin and Tanggu in north China. Guangdong Province in Southern China produced nearly \$47 billion worth of electronics and IT products in 2002, making it the highest producing region in China. Jiangsu Province’s output value increased 21 percent from 2001, reaching \$31 billion. The integrated circuit, computer, and digital audio and video devices industries have become a pillar sector for the region. Beijing’s output of electronics and IT products reached \$722 million in 2002, representing a 6 percent increase from the previous year.

### ***Research and Development Initiatives in the High-Tech Sector***

Since 1997, MoST has doubled its expenditure to 104 billion RMB (approximately \$13 billion) to promote science and technology research and development (R&D), compared to the previous five-year period. Corporate R&D accounted for 65 percent of total spending. Among new technology innovations are the development of China’s mobile standard, time division synchronous code division multiple access (TD-SCDMA). In the next five years, the Ministry plans to significantly increase its spending to nearly \$85 billion.

MoST is responsible for developing and administering many of the national initiatives to improve national economic development through science and technology. Below are brief overviews of some of the programs:

The **863 Program** was initiated in 1986 to develop large scale technologies targeted for both military and civilian use in the biology, space, information, laser, automation, and energy technologies sectors.

The **Spark Program** was also formally implemented in 1986 to help the rural economy adopt appropriate technologies to improve the agrarian economy, promote rural productivity, and relieve poverty.

The **Torch Program** began in 1988 and was designed to promote R&D of new and advanced technologies, to foster an entrepreneurial spirit among researchers and engineers, and to assist researchers in commercializing new technologies. The Torch Program focuses on the following key fields: new materials, biological engineering, electronics and information, and energy saving and environmental protection technologies. As part of the Program, MoST has created several New Technology Development Zones throughout China to encourage the development of these new technologies.

***Benefits of China's WTO Membership for the IT and Telecom Industries***

After 15 years of negotiations, China joined the World Trade Organization (WTO) on December 11, 2001. China's membership in the WTO will reduce uncertainties in the Chinese market as China upholds its commitments at the international level. At the same time, its membership will strengthen Chinese companies to become more competitive in the world economy in the long term. China's WTO commitments will yield the following benefits for the U.S. IT and telecom sectors:

- 1) Open China's telecommunications services market to foreign investment** – China agreed to permit foreign companies to invest in China's telecommunications services market, which had previously been closed to foreign ownership, control or operation. Full details of the market-opening schedule for telecom services can be found in Chapter 2.
- 2) Lower tariffs for IT and telecommunications products under the Information Technology Agreement (ITA)** - Quotas on all ITA products were eliminated by 2002. China's average tariff rate on ITA products was 6.4 percent. Upon accession, China agreed to eliminate tariffs on three-fourths of the ITA products by January 1, 2003, and eliminate tariffs on all the remaining products by January 1, 2005. See Appendix for a listing of ICT products by Harmonized System classification numbers that qualify for ITA treatment.
- 3) Phase-in of full trading and distribution rights over three years** - Prior to its accession, through various means, China restricted the number of companies that had the right to import and export goods as well as the types of goods that these companies could import. As of the date of its accession, China eliminated all export performance, trade or foreign exchange balancing, and prior experience requirements as criteria for obtaining or maintaining the right to import and export. Chinese enterprises received full trading rights upon accession, subject to certain minimum registered capital requirements. Joint ventures with minority foreign ownership will be granted full trading rights within one year after accession, and joint ventures with majority foreign ownership will be granted full trading rights within two years after accession. All enterprises, including those in the IT sector, will be granted full trading rights within three years after accession (except with regard to a limited number of products reserved for state trading enterprises).

For enterprises and individuals that are not invested in China, the right to import and export will be granted in a non-discriminatory and transparent manner. Any requirements will be for customs and fiscal purposes only.

Furthermore, prior to its accession, China did not generally permit foreign companies to distribute products through wholesale and retail systems in China or to provide related distribution services, such as repair and maintenance services. These prohibitions will be phased out over three years for most products, including those covered by the ITA.

**4) Elimination of investment restrictions and technology transfer and local content**

**requirements** - China will no longer condition importation or investment approvals on whether competing domestic suppliers exist or on performance requirements of any kind, such as export performance, local content, technology transfer, offsets, foreign exchange balancing, or research and development.

**5) Improvement of intellectual property protection through immediate accession to the Trade-Related Intellectual Property Rights (TRIPs) Agreement** - In accordance with the TRIPs, China is obligated to comply with internationally accepted norms for protecting and enforcing the intellectual property rights (IPR) of U.S. and other foreign companies and individuals in China.

China has modified its intellectual property laws and regulations, including those relating to patents, trademarks, trade secrets, test data, integrated circuits, and copyrights. In addition, China has committed to strengthen the enforcement of these laws and regulations by its courts and the responsible administrative agencies.

**China has further agreed that it will only impose, apply, or enforce laws, regulations, or other measures relating to the transfer of technology that are consistent with the WTO Agreement on Trade-Related Investment Measures (TRIMs) and the TRIPs Agreement.**

**6) Adoption of technical standards and conformity assessment procedures will be more**

**consistent with international practices** - China must bring all of its technical regulations, standards, and conformity assessment procedures into conformity with the WTO Agreement on Technical Barriers to Trade (TBT). The same processing periods and fees will apply to both imported and domestic products and the choice of the assessment body or agency will be at the discretion of the importer.

China must apply the same technical regulations, standards, and conformity assessment procedures to both imported and domestic products by authorizing agencies to assess both types of products during an 18-month transition period.

Multiple and duplicative assessment procedures will be eliminated<sup>9</sup>.

---

<sup>9</sup> Prior to China's accession to the WTO, China required two marks to import and sell IT and telecom equipment in the China market. These marks were administered by two separate agencies. Since China's accession, the two marks have been merged into a new China Compulsory Certification (CCC) mark, required on all products - domestic and imports - on a 132-product category list. A new body called the Certification and Accreditation Administration of China (CNCA), administratively under the State General Administration for Quality Supervision, Inspection and Quarantine (AQSIQ), administers the CCC mark. However, redundant testing requirements still remain between CNCA and the Ministry of Information Industry for certain telecom products. Telecom terminal equipment currently requires three marks to be sold in the China market: (1) one for frequency verification, (2) one for network access, and (3) one for quality, safety, and electromagnetic compatibility (CCC mark).



China will only test imported products for conformity with contractual terms at the request of the parties to the contract and will not require further conformity assessment procedures (except for random sampling) for products certified by a body that China recognizes.

China must now base technical regulations on international standards. These regulations must be developed in a transparent manner and applied equally to domestic and foreign products.

- 7) National treatment for internal taxes** - China has agreed to ensure that its laws, regulations, and other measures relating to internal taxes and charges levied on imports comply with WTO rules and are applied uniformly to both foreign and domestic enterprises. This obligation applies not only to national taxes, but to provincial and local taxes as well.
- 8) Elimination of export and import subsidies** - China has agreed to eliminate all subsidies on industrial goods that are prohibited under WTO rules, i.e., export and import substitution subsidies.

**Table 1-5: Select WTO Agreements Affecting the IT and Telecommunications Sector**

<b>Name of Agreement</b>	<b>Timeframe for Commitment</b>
Information Technology Agreement (ITA)	Upon Accession
Agreement on Trade-Related Investment Measures (TRIMS)	Upon Accession
Agreement in Trade-Related Aspects of Intellectual Property Rights (TRIPS)	Upon Accession
Agreement on Technical Barriers to Trade (TBT)	Upon Accession
Government Procurement Agreement (GPA)	Observer status
Telecom Services	Phase-in schedule

Table 1-5 outlines some of the agreements under the WTO that were part of China's accession package. Although the Chinese government has made great strides in revising their laws to become WTO-consistent, structural challenges still remain, including the lack of sufficient IPR enforcement, lack of rule of law, and lack of transparency. The U.S. government is working closely with several ministries to provide technical assistance for China's implementation of its commitments.

### ***2008 Beijing Olympics***

China will host the 2008 Olympic Games in Beijing. The 2008 Games will present IT and telecommunications companies with tremendous opportunities to display their products and services for the "Digital Olympics." The Beijing Municipal Government's Informatization Office (BIO) plans to invest \$3.6 billion in information services, expand its fiber optic networks to cover all Olympic sites, introduce a mobile communication network capable of handling 500,000 calls in the Olympic site area, establish a digital network capable of high-definition television (HDTV) transmission for all Olympic venues, and install Global Positioning System (GPS) technology to

cover transport routes to be used both for the Olympics and public transport. The Beijing Olympics will also be the first Olympic Games to enjoy wireless broadband third generation (3G) technology. For a more detailed discussion on Olympic Games opportunities, see Chapter 5 on Market Opportunities and Entry Strategies.

***The U.S. Department of Commerce's International Trade Administration's Bilateral and Multilateral Activities with China on IT and telecommunications issues:***

U.S.-China Joint Commission on Commerce and Trade Information Industry Subgroup

The Information Industry (II) Subgroup is one of several industry subgroups organized under the Business Development and Industrial Cooperation Working Group (BDIC) of the U.S.-China Joint Commission on Commerce and Trade (JCCT). The II Subgroup covers the following sectors: telecommunications equipment and services, computer hardware and software, information services, semiconductors, and a variety of related electronic components. The goal of the Subgroup is to promote the development of commercial relations and bilateral trade between the United States and China in the information technology and telecommunications sectors, respectively. This is accomplished by exchanging data related to information technology; resolving commercial issues of concern to IT and telecom firms in the U.S. and China; identifying, organizing and supporting trade missions, exhibitions, conferences, seminars, and similar trade events; and considering other commercial programs that might contribute to furthering the growth and development of commercial relations between the two countries.

The U.S. co-chair is the Department of Commerce's Deputy Assistant Secretary for Information Technology Industries. The Chinese co-chair is the Director General of the Department of Foreign Affairs at the Ministry of Information Industry. Some of the primary issues the Subgroup has addressed and will continue to address include intellectual property rights protection, technology transfer requirements, Internet issues, market development, and market access improvement. The Subgroup meets on an annual basis and signs a work program that includes a combination of trade promotion events and trade policy seminars. The 2003 II Subgroup Work Plan is in the Appendix.

Asia Pacific Economic Cooperation<sup>10</sup> (APEC) Telecommunications and Information (TEL) Working Group

The APEC TEL was formed in 1990 and addresses issues such as human resource development, technology transfer and regional cooperation, and telecommunications standardization. Both government officials from APEC member economies and private sector representatives can participate in the TEL meetings and workshops, which take place biannually. The Ministry of

---

<sup>10</sup> APEC was established in 1989 to promote trade and economic cooperation throughout the Asia-Pacific region. APEC currently consists of 21 member economies, including Australia, Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States of America, and Vietnam.



Information Industry represents China at the APEC TEL meetings. On the U.S. government side, the State Department, the Commerce Department's International Trade Administration (ITA) and the National Telecommunications and Information Administration, and the Federal Communications Commission attend the TEL meetings.

APEC E-commerce Steering Group (ECSG)

The APEC ECSG was established in 1999 after the APEC Senior Officials Meeting in Wellington, New Zealand. The ECSG meets twice a year and addresses issues such as data privacy, paperless trading, and consumer protection. Similar to the TEL, both government and private sector representatives participate in the ECSG meetings and workshops. The Ministry of Foreign Trade and Economic Cooperation's (MOFTEC)<sup>2</sup> E-commerce Administration office has represented China in the ECSG. The Commerce Department's ITA and the Federal Trade Commission participates in the ECSG. The Department of Commerce leads the U.S. delegation to the APEC ECSG meetings, and currently serves as the chair of the Steering Group. China, Thailand, and Australia are the current vice-chairs.

---

---

## CHAPTER 2: TELECOMMUNICATIONS

---

The Chinese government has long recognized the importance of a modern telecommunications network to overall economic development and has devoted considerable attention to fostering the development of the nation's telecommunications sector. Telecommunications was designated as one of the "pillar industries" of economic reform and over the past 10-15 years China has accomplished the largest telecommunications infrastructure build-out in world history. While this has created tremendous opportunities for foreign suppliers, those opportunities have been tempered by Chinese economic, political, and national security policies designed to promote the development of an indigenous industry and minimize the reliance on foreign vendors. Given the importance of government regulatory policies in the telecommunications sector, an understanding of the regulatory environment is a useful tool for foreign firms interested in competing in China's telecommunications marketplace.

### REGULATORY ENVIRONMENT

#### *Ministry of Information Industry*

The Ministry of Information Industry (MII) is the principal regulatory agency for China's telecommunications industry. MII is subject to oversight by the State Council. MII was created in March 1998 by merging the Ministry of Posts and Telecommunications (MPT) with the Ministry of Electronics Industry (MEI). Wu Jichuan, who was Minister of Posts and Telecommunications at the time, became the new Minister of Information Industry. He served in that position until his retirement in March 2003, when he was replaced by Wang Xudong (see bios below).

The Ministry of Information Industry ([www.mii.gov.cn](http://www.mii.gov.cn)) is charged with a wide variety of responsibilities. As MII states in its 2001 Annual Report, "the Ministry of Information Industry is a regulatory body in charge of the manufacture of electronic and information products, communications and the software industry, as well as the promotion of informatization of the national economy and social services in the country." Its many duties include the development and management of China's communications networks as well as the nation's telecommunications and information technology equipment manufacturing industries. MII is responsible for developing equipment standards, allocating spectrum, managing satellite orbital slots, developing tariff rates for telecom services, managing emergency and disaster relief-related communications systems, and managing the telecommunications numbering system and Internet domain name registration, among other duties.

MII's responsibilities occasionally conflict and may preclude the Ministry from functioning as a truly independent regulator. Its responsibility to foster the development of China's IT and telecom equipment industries, for example, can result in MII applying pressure to network operators to purchase Chinese-manufactured equipment rather than imported equipment.

***Minister Wu***

Wu Jichuan, the former Minister of Information Industry who retired in March 2003, was the principal architect of China's remarkable telecommunications infrastructure build-out. Wu is a graduate of the Beijing University of Posts and Telecommunications (BUPT) who joined MPT's Planning and Construction Department in 1965, eventually working his way up to vice minister in 1984. He was appointed Executive Vice Governor of Henan Province in 1990 but came back to MPT as Minister in 1993 and then became the Minister of Information Industry when that agency was created in April 1998.

In his position as Minister of Posts and Telecommunications, and later Minister of Information Industry, Wu took a very conservative approach to telecommunications liberalization and deregulation. He believed in utilizing foreign capital, technology and experience to strengthen China's own self-reliance, thus "maintaining the national sovereignty and security." Under his guidance, MPT pursued a policy of trading market access for technology transfer in the telecom equipment sector and laid down a strict prohibition on foreign ownership, operation or management of telecommunications services operations in China. Many of these policies are being revised in the wake of China's accession to the WTO, but the effects are likely to linger long after the policies are changed.

***Minister Wang***

Wang Xudong, the former party secretary of Hebei Province, was named party secretary for the Ministry of Information Industry at the National Party Congress in December 2002 and succeeded Wu Jichuan as Minister of Information Industry at the National People's Congress in March 2003. Wang's appointment is significant in that he does not have a background in telecommunications and is considered an industry outsider. This has prompted much speculation regarding the future direction of MII policies under his leadership.

***State Administration for Radio, Film and Television***

The State Administration for Radio, Film and Television (SARFT) is responsible for overseeing the operation of China's radio, film, and television operations. This includes licensing radio and television broadcast stations, film distribution, and the country's cable television networks. SARFT is also responsible for monitoring the content that is distributed via these media. SARFT has sought to expand the capabilities of cable television networks to provide Internet access and telecommunications services. These efforts have brought it into conflict with MII, which claims to be the only entity authorized to issue licenses for telecom and Internet service provision. Conversely, MII has indicated an interest in licensing radio and television networks, while SARFT has opposed such efforts. It is expected that the State Council will determine the future rights and responsibilities of each ministry, and ultimately, the future of the convergence of the various services.

**Market Characteristics**

China's telecommunications equipment market is characterized by rapid growth, intense competition, and a multitude of complex, multi-layered, political and economic factors that must be carefully and successfully evaluated in order to achieve success. It is important to recognize that, while the Chinese government appears committed to foster a more competitive telecommunications service environment, this commitment does not necessarily mean that equipment vendors with the best technology and/or lowest prices will succeed in the Chinese marketplace.

As previously noted, MII is charged with promoting the development of an indigenous information and communications technology industry in China. Prior to its WTO accession, China maintained a number of explicit policies that were designed to limit the nation's dependence on foreign technology and protect China's nascent manufacturing industry. These included requirements for foreign vendors to establish joint ventures with Chinese partners and to build manufacturing facilities in China. Market access was usually conditioned on technology transfer - the higher the level of technology a foreign company transferred to its joint venture in China, the more market share it would be granted in China. Imports of component parts to feed the factories in China would often have to be offset by exports of finished products from the factory.

A March, 1999, report by the U.S. and Foreign Commercial Service office in China noted that MII had outlined the following principles to Chinese equipment manufacturers:

- Investment in research will be increased to develop Chinese telecommunications products so that China will become less dependent on imported technology;
- Chinese telecom operators should give priority to domestic products when the price and quality are similar to imported products;
- Chinese-foreign joint ventures are expected to speed up technology transfer to their Chinese partners, increase the proportion of locally sourced raw materials, and develop new products to meet market demand.

The effect of these policies has been demonstrated in China's central office switching market. Prior to 1996, foreign suppliers and Chinese-foreign joint ventures were the dominant players in supplying central office switching equipment for China's network. By 1998, foreign vendors had seen their market position seriously eroded by Chinese manufacturers.

### ***Telecommunications Equipment Trade***

China has one of the world's most competitive telecommunications equipment markets. The explosive growth of the country's telecommunications networks long ago attracted the attention of all the major international equipment manufacturers and all have established joint venture manufacturing operations in China. Motorola, Ericsson, Siemens, Alcatel, Lucent, Nokia, and Nortel are well known in China, and a growing number of Chinese firms have developed to compete with them. The Chinese government has fostered the development of

Chinese manufacturers through a wide range of tariff and non-tariff barriers, and Chinese manufacturers now compete with foreign companies, not only in the Chinese market, but in third-country markets as well. Huawei, ZTE, Shanghai Bell, and Datang are among the better known Chinese equipment manufacturing companies.

U.S. telecommunications equipment exports to China have risen at an average annual rate of 8 percent each year since 1993, reaching a peak of \$1.1 billion in 2001. However, U.S. imports of these products from China grew more than twice as fast (19 percent) each year during this same period to \$ 3.2 billion. By year-end 2002, U.S. telecommunications equipment exports fell sharply, losing over a third of their value, while imports from China increased by nearly \$1.4 billion. These significant changes in trade have led to a steadily worsening U.S. telecommunications product trade deficit with this country (Table 2-1).

**TABLE 2-1: U.S. TELECOMMUNICATIONS EQUIPMENT TRADE WITH CHINA  
1993-2002 (\$ MILLIONS)**

<b>Year</b>	<b>U.S. Exports</b>	<b>U.S. Imports</b>	<b>Balance</b>
1993	589.5	820.5	(231.0)
1994	630.8	1284.2	(653.4)
1995	863.3	1372.9	(509.6)
1996	752.8	1201.7	(448.9)
1997	780.6	1486.8	(706.2)
1998	780.5	1821.6	(1041.1)
1999	553.4	2329.9	(1776.5)
2000	757.9	2967.5	(2209.6)
2001	1120.4	3219.4	(2099.0)
2002	723.9	4611.6	(3887.7)

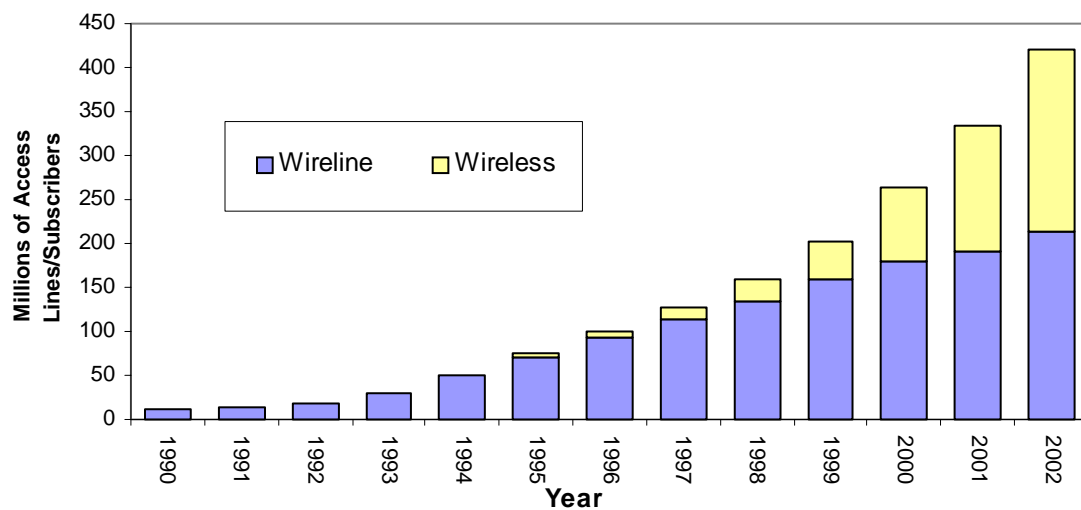
Source: Compiled by the Office of Telecommunications Technologies, using trade and tariff data from the U.S. Department of Commerce, U.S. Treasury, and U.S. International Trade Commission.

### **Growing the Network**

According to MII, the first telephone was installed in China in 1882. However, China's telecom network grew very slowly and amounted to only 4 million lines as recently as 1980, or less than one telephone for every 232 people. Growth accelerated through the 1980s. By 1990, China had 12 million lines, but this was still only one telephone per 100 people. Since that time, network growth has been explosive, and China now boasts the largest wireline and wireless networks in the world. MII reported that China had 214.4 million wireline subscribers and 206.6 mobile subscribers, as of year-end 2002 (Figure 2-1). This equates to a telephone penetration ratio of approximately 16 percent for wireline and 15.5 percent for wireless, although these figures can be misleading since teledensity rates tend to be much higher in urban areas of China and significantly lower in rural areas. This is also reflected in a geographical disparity between the more densely populated eastern part of the country and the less densely populated western provinces.

The tremendous growth in China's telecommunications network can be attributed to a number of factors. First, the government recognized the importance of telecommunications development to overall economic development. It made telecom and IT development a national priority and enacted preferential policy initiatives to promote telecommunications modernization. Second, as China's economic development has progressed, the country's rapidly expanding business sector has generated increased demand for additional communications services and equipment. The rise in living standards also made it possible for an increasing number of Chinese citizens to afford telephones. Finally, technological advances have contributed to network growth by making available better equipment at lower prices.

**FIGURE 2-1: NETWORK BUILDOUT IN CHINA**



## Service Providers - A Brief History

Prior to 1994, China followed the traditional model of a government-owned-and-managed “post and telecom authority” with the Ministry of Posts and Telecommunications administering the nation’s postal and telephone systems. The telephone service provider operated as a national monopoly through a hierarchical structure, rising from municipal and county offices to provincial offices to the Ministry in Beijing. The first steps towards telecom sector reform occurred in the 1988 to 1991 period, when a restructuring of MPT was initiated to begin to separate the various functions of the agency into different offices. Enterprise offices were separated from government functions, separate directorates-general were established for post and telecom operations, and a variety of decision-making responsibilities were shifted from central headquarters to provincial and municipal operating entities. Reforms continued from 1991 to 1993. Provincial and municipal operators were permitted to purchase network equipment from a variety of competing MPT-approved suppliers (many of them Chinese joint ventures with some of the world’s leading manufacturers) and the terminal equipment market and the paging services sector were opened to competition.

### *Unicom is born*

MPT’s monopoly status in the Chinese telecom services market ended in 1994 when China’s State Council approved the creation of China United Telecommunications, or China Unicom. China Unicom was supported by the Ministry of Electronics Industry, the Ministry of Railways, the Ministry of Electric Power, and approximately a dozen other state-run enterprises that had an interest in entering China’s telecom services market.

As originally proposed and approved by State Council Directive 178, China Unicom was expected to use the capacity of the pre-existing internal communications networks of the Electric Power and Railway Ministries, and equipment manufactured by MEI, to construct a network that would provide telecom service to areas of China that were not being served by MPT’s network. In turn, the establishment of this new network was generally expected to spur MPT to accelerate its infrastructure construction and service delivery schedule, which many in the Chinese government did not believe was proceeding at a satisfactory pace.

Shortly after Unicom was approved, it became obvious that its backers had much higher aspirations for the company. Rather than build a network to complement the MPT network, which essentially would mean serving only rural areas, Unicom wanted to compete with MPT in more lucrative urban markets, as well as in wireless and international communications. Unicom was seriously disadvantaged in its endeavor by the fact that MPT not only opposed its objectives, but was also the industry regulator and could stack the deck against the firm.

By early 1996, Unicom had constructed cellular networks in ten Chinese cities, but was faced with MPT’s refusal to allow Unicom to connect them to the public switched telephone network (PSTN). MPT also refused to grant Unicom a license to provide international service. When it became obvious that Unicom would not get any satisfaction from MPT, the company took its



complaints to sympathetic members of the State Council, who forced MPT to connect Unicom's cellular networks to MPT's national network.

In March, 1997, a Chinese policy research group, comprised of officials from the State Planning Commission, State Economic and Trade Commission, and the State System Restructuring Commission, recommended that the State Council issue a new directive that would recognize Unicom as a carrier authorized to compete with MPT.

The Unicom situation was apparently discussed at the 1997 National Party Congress. At the National People's Congress in March, 1998, the creation of the new Ministry of Information Industry was announced and was charged with administering the development of both China Unicom and China Telecom.

While this government restructuring helped to level the regulatory playing field for China Unicom, it did not address one of the other major problems facing the company — raising capital. China Unicom had a long history of difficulties in financing its infrastructure build-out and had turned to foreign firms for assistance. Since it was illegal for foreign firms to invest in telecom networks in China, Unicom resorted to a model that had been developed in China's power sector.

Known as the China-China-Foreign (CCF) model, it required a potential foreign investor to form a joint venture with a Chinese firm to provide consulting and other related services. Under Chinese law, that joint venture was considered a "Chinese" company that then could enter into a contract with China Unicom to provide consulting and other telecommunication related services.

Although this model was obviously a circumvention of the intent of the Chinese prohibition on foreign participation in China's telecom service sector, Chinese authorities turned a blind eye to the practice for several years. During this period, which ranged from 1995 through mid-1998, Unicom reportedly attracted approximately \$1.4 billion in foreign investments through approximately 50 CCF deals, despite the fact that these arrangements were made in a gray legal environment.

In mid-1998, foreign investors began to receive word that their CCF investments were illegal and would have to be terminated. The fee that China Unicom paid under the service contract to the JV was tied directly to the revenue generated by the actual operation of the network. It was this fee structure that provided MII with the justification that this CCF arrangement effectively constituted equity ownership, control, and operation of the network, in violation of Chinese law.

This policy change ultimately became the subject of intense discussion between not only Unicom and its foreign partners, but also between Chinese government officials and foreign government officials whose companies were affected by it. Ultimately, all of Unicom's CCF deals were dissolved, reportedly on terms that were not very favorable to the foreign investors.



In early 1999, MII appointed a new management team to China Unicom, consisting of very senior officials from the Ministry, with experience in management, operations, and finance. At the time, this move was viewed as evidence that MII was committed to turning Unicom into a well-managed and viable enterprise.

Yang Xianzu, former Executive Vice Minister of MII, was appointed Unicom Chairman and President. Wang Jianzhou, former Director-General of Planning Department in MII, was appointed Unicom Executive Vice President.

Shi Cuiming, former Chairman of China Telecom Hong Kong and former Director-General of the Financial Department of MPT, was appointed Unicom Vice President. This appointment was widely considered by outside observers to foretell plans to take China Unicom public, since Mr. Shi had experience in this regard during his tenure with China Telecom Hong Kong. See further discussion under “Stock Offerings,” below.

### ***China Jitong***

The creation of China Jitong Corporation was another element of structural reform in China’s telecom sector. Authorized by the State Council in 1993, the company was established in Beijing in 1994. Jitong was charged with developing a national “information highway” network, which was known as the Golden Bridge Network. The network originally provided services to Chinese government agencies, but began offering commercial service in October 1996. In addition to the Golden Bridge project, Jitong was also given responsibility for managing a data network connecting agencies responsible for handling foreign trade data, the Golden Customs Project, and a national credit and banking card network, the Golden Card project. Although Jitong’s initial focus was on data communications, it branched out into voice services in 1999 when it began offering voice over Internet protocol (VOIP) service via pre-paid phone cards.

### ***More new players: China Mobile and China Satellite***

While MII was getting re-organized, it was also considering ways in which to implement its mandate from the State Council to create a more competitive telecommunications environment and reduce China Telecom’s market dominance. In late 1998, rumors began to circulate that China Telecom would be broken up, which were followed by restructuring the following year. China Telecom’s wireless network was spun off as a new entity, China Mobile, and the satellite operations were spun off as China Satellite. The paging business was transferred to China Unicom, thus providing a steady cash flow to that company while it was in the throes of terminating its CCF joint ventures. See discussion under “China Unicom,” above.

### ***China Netcom***

China Netcom, launched in late 1999, was billed as China’s “third” telecom service provider after China Telecom and China Unicom. At the time of its creation, Netcom had four principal backers: the Chinese Academy of Sciences, the State Administration of Radio, Film & Television (SARFT), the Ministry of Railways, and the Shanghai Municipal Government. The

company's business plan was predicated on the provision of VOIP services via a high-speed fiber optic network, which would enable it to provide long distance service at significantly lower rates than were being offered by China Telecom and Unicom.

### ***China Railway Telecommunications***

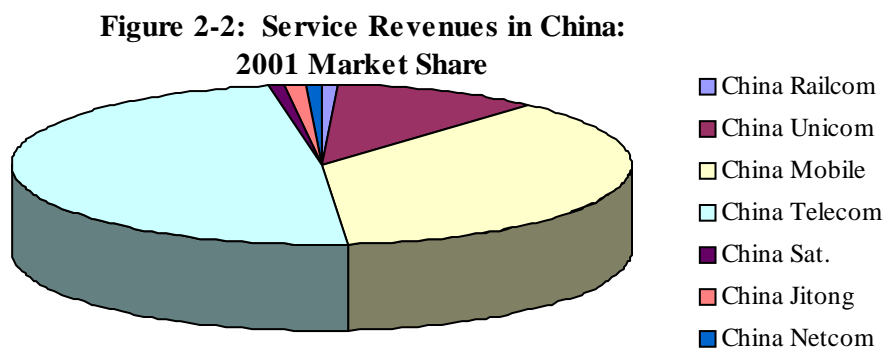
The Ministry of Railways received a license from MII in late 2000 to provide all basic telecommunications services, except mobile services. The Ministry launched China Railway Telecom (CRT) with a plan to utilize its in-house telecom network to provide service to outside customers (which sounds remarkably similar to the original plan behind the creation of China Unicom). At the time it was granted its license, CRT reportedly had 40,000 kilometers of fiber optic cable installed along its 120,000 kilometers of railroad lines.

### ***China Telecom splits - again!***

In the latter half of 2001, the State Council announced plans to split China Telecom, which still controlled the nation's public wireline network, into two companies. China Telecom would retain the local loop networks in twenty-one of China's southern provinces and municipal areas, while the local loop networks in ten northern provinces and municipal areas would be combined with China Netcom and China Jitong to create a much larger company that would be called China Netcom. After several months of planning for the restructuring, the split became effective in May, 2002. An interesting feature of the split was the division of China Telecom's backbone network: China Telecom retained 70 percent of the capacity of the network, while China Netcom received the remaining 30 percent. This division effectively gave each company a presence in the other's territory, thus setting the stage for what the government hoped would be effective competition.

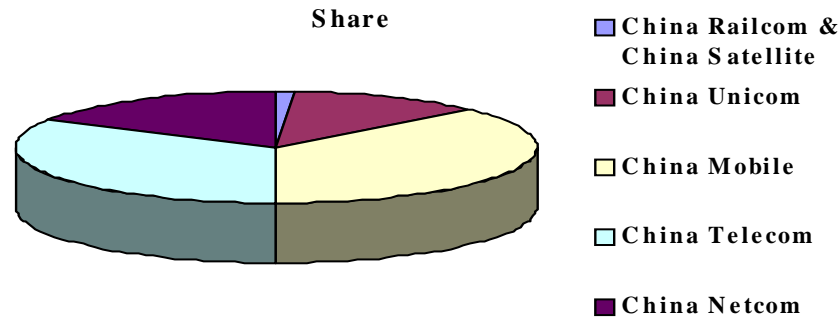
### **Service Providers' Market Shares**

As of year-end 2001, MII reported the following revenues for Chinese telecom service providers (Figure 2-2):



At year-end 2002, following the restructuring of the industry, the Ministry of Information Industry reported the following market shares for Chinese telecom service providers, in terms of revenue (Figure 2-3):

**Figure 2-3: Service Revenues in China 2002 Market**



Source: Ministry of Information Society

### *Mobile Networks and 3G Licensing*

There are currently only two companies authorized to provide mobile communications services in China: China Mobile and China Unicom. China Mobile, which was spun-off from China Telecom in 1999, is the dominant player in the market, and has about two-thirds of the country's 200+ million mobile subscribers (as of year-end 2002). The company operates a nationwide cellular network based on the GSM (global system mobile) standard.

China Unicom had almost 70 million subscribers at year-end 2002. The firm also operates a nationwide GSM cellular network, but in 2001 it began deploying a second wireless network based on the CDMA (code division multiple access) standard. As of year-end 2002, Unicom claimed to have about 7 million CDMA subscribers, representing about 10 percent of its total subscriber base.

In addition to the mobile networks operated by China Mobile and China Unicom, China Telecom and China Netcom operate wireless networks based on the PHS (personal handy phone) standard. These systems are officially classified by MII as an extension of fixed line networks and charge the same rates as fixed line service. Although the systems do not permit roaming from one service area to another, they do offer mobile service within the municipal system in which they are licensed. They are generally marketed as a less expensive alternative to China Mobile's and China Unicom's wireless services. As of year-end 2002, there were reported to be approximately 15 million subscribers to these services. China Mobile and China Unicom have begun to express concerns to MII that these services are a violation of the mobile licensing restrictions imposed on China Telecom and China Netcom.

There is currently intense interest and speculation surrounding China's plans for 3G (third generation) wireless technologies. There are reportedly three standards being evaluated by the MII: WCDMA, CDMA-2000, and TD-SCDMA. The Chinese view WCDMA as a "European" standard, CDMA-2000 as an "American" standard, and TD-SCDMA as a "Chinese" standard, and these perceptions are expected to influence the licensing of 3G technologies.

Recent press reports have cited MII officials as indicating that four 3G licenses will be issued (to China Mobile, China Unicom, China Telecom and China Netcom) and that each operator will be free to choose its preferred standard. Most observers, however, believe that pressure will be exerted on at least one of the operators to go with the TD-SCDMA standard. The stakes will be very important, not only for operators, but also for equipment vendors, most of which have cast their lots with one or another, or sometimes multiple, standards.

### *Stock Offerings*

In an effort to raise outside capital to finance additional infrastructure build-out, MPT put forward a proposal in 1997 to list the assets of a limited number of its China Telecom mobile operations on foreign stock exchanges. This model proved to be quite successful in raising capital without ceding any management control to outside interests. The initial public offering (IPO) of China Telecom assets was not only expanded, but was followed by additional offerings from other companies. Following is a brief summary of these exercises.

#### **China Telecom (Hong Kong)/China Mobile (Hong Kong) ([www.chinamobilehk.com](http://www.chinamobilehk.com))**

In 1997, MPT received permission from the State Council to merge the assets of two of its most profitable provincial cellular operations, Guangdong Mobile and Zhejiang Mobile, into a new entity that would be listed on the Hong Kong and New York stock exchanges. The new company was incorporated under the laws of Hong Kong on September 3, 1997, as "China Telecom (Hong Kong) Ltd. (CTHK). MPT retained control of 75.1 percent of the shares of the company while the remaining shares were sold via an IPO in October, 1997, that netted approximately \$4.2 billion. This listing was considered very successful for MPT. It raised significant funds without giving up any management control of the assets, but also raised the very real question of what the outside investors were actually receiving for their money.

In 1998, China Telecom (Hong Kong) added Jiangsu Mobile to its holdings for approximately U.S. \$4 billion and, in 1999, bought three more provincial mobile networks — Fujian Mobile, Henan Mobile and Hainan Mobile — while raising an additional \$2.5 billion in a stock and bond offering. By year-end 1999, CTHK's six provincial networks accounted for 36 percent of China's total mobile subscribers. In May, 2000, the company changed its name to China Mobile (Hong Kong), following the restructuring of the mainland China Telecom into four separate operating units. The new mainland China Mobile Communications Corp. was granted the ownership of China Mobile (Hong Kong).

China Mobile (Hong Kong) has continued to acquire additional networks and, as of year-end 2002, owned mobile networks in 21 provinces, municipalities and autonomous regions in China, including Guangdong, Zhejiang, Jiangsu, Fujian, Henan, Hainan, Beijing, Shanghai, Tianjin, Hebei, Liaoning, Shandong, Guangxi, Anhui, Jiangxi, Chongqing, Sichuan, Hubei, Hunan, Shaanxi, and Shanxi.

The Company's major shareholder is China Mobile (Hong Kong) Group Limited, which, as of July 1, 2002, indirectly held an equity interest of approximately 75.7 percent in the Company through a wholly-owned subsidiary, China Mobile Hong Kong (BVI) Limited. Public investors hold the remaining stock in the company, estimated at 24.3 percent.

**China Unicom Ltd.**  
([www.chinaunicom.com.hk](http://www.chinaunicom.com.hk))

China Unicom Limited was incorporated in Hong Kong in February 2000. The initial assets of the company included GSM cellular networks in twelve provinces, its nationwide paging businesses, and its nationwide wireline assets. Unicom issued stock on the New York and Hong Kong exchanges in June, 2000, raising \$5.65 billion. The public stock offering represented 22.5 percent of the company's shares; the remaining 77.5 percent of shares were controlled by the mainland parent company.

In September 2002, China Unicom launched a domestic IPO on the Shanghai exchange, raising \$1.4 billion for 23.4 percent of shares in the company's China assets. The funds raised were reportedly to be used to expand the company's CDMA network.

**China Telecom**

The "new" China Telecom went public with a listing of its four most profitable provincial networks on the Hong Kong and New York stock exchanges in November 2002. The company was forced to scale back its plans to raise \$3.68 billion with the offering, but did raise \$1.43 billion. In January 2003, the *South China Morning Post* reported that the company planned to purchase 5 more provincial networks, for an estimated price of \$4 billion, in mid-2003.

**WTO COMMITMENTS/IMPLEMENTATION - EQUIPMENT**

**Telecommunications Products**

China has agreed to wide-ranging reforms affecting trade in goods through its accession to the World Trade Organization (WTO). These changes should result in better access for foreign suppliers to the Chinese market by eliminating various trade-restrictive requirements and incentives that favored domestic Chinese-manufactured goods. Below are some of the changes that will affect the telecom and IT sectors. See the overview chapter (Chapter 1) for a more

detailed discussion on the impact of China's WTO membership on IT and telecommunications products.

**Tariffs:** China agreed to sign on to the Information Technology Agreement (ITA) on accession, thereby committing to eliminate tariffs on all products covered by the ITA. Tariff reductions from its previous applied average of 13% were initiated upon accession. Tariffs on two-thirds of the ITA products were eliminated by January 1, 2003, and tariffs on all the remaining products will be eliminated by January 1, 2005.

**Local Content:** China agreed to eliminate local content requirements immediately after accession to the World Trade Organization and not to enforce provisions in existing contracts that impose this requirement.

**Technology Transfer:** China will eliminate technology transfer requirements and offsets as a condition for investment approval or importation. The terms and conditions of any transfer of technology will be agreed between the parties to a contract and not imposed by the government. Exports from the United States will no longer face this barrier, and companies that want to invest in China can negotiate these terms without interference from the Government of China. China will also have to provide better intellectual property protection for technology that is transferred and eliminate requirements mandating that the Chinese partner in a joint venture gains ownership of trade secrets after a certain number of years.

#### WTO COMMITMENTS/IMPLEMENTATION – TELECOMMUNICATIONS SERVICES

China has divided its telecommunications services sector into four categories: value-added services, paging services, mobile services, and other basic services. Each category, except mobile communications, has a 3-stage implementation plan. Mobile communications has a 4-stage implementation plan. Each stage allows an increased level of foreign investment and/or opens a larger geographic area to foreign participation.

The implementation schedules for value-added services and paging services in stage one of China's WTO accession commitments allow foreign entities to hold up to a 30 percent share of a joint venture with Chinese partners and offer services in the three cities of Beijing, Shanghai, and Guangzhou, effective on the date of accession (December 2001). Stage two became effective in December 2002 (one year after the date of accession) and allows foreign entities to hold up to a 49 percent share of a joint venture offering value-added or paging services in the preceding 3 cities, plus 14 additional cities (Chengdu, Chongqing, Dalian, Fuzhou, Hangzhou, Nanjing, Ningbo, Qingdao, Shenyang, Shenzhen, Xiamen, Xian, Taiyuan, and Wuhan). Stage three becomes effective in December 2003 and will allow foreign entities to own a 50 percent share in a joint venture that will be permitted to offer value-added or paging services with no geographical restrictions.

The implementation schedule for foreign investment in mobile services allows, as of the date of China's accession to the WTO, foreign entities to hold a 25 percent share of a joint venture

offering mobile service in Beijing, Shanghai, and Guangzhou. As of December 2002, foreign entities can hold a 35 percent share in a joint venture offering service in the original three cities plus the 14 additional cities listed above. In December 2004, the allowable foreign investment share rises to 49 percent of a joint venture, but the service area remains restricted to the 17 cities. In December 2006, the geographic restrictions are lifted, but the foreign investment limit remains at 49 percent.

The basic telecommunications services sector remains closed to foreign investment until December, 2004. At that time, foreign entities may hold up to 25 percent of a joint venture offering service in the three cities of Beijing, Shanghai, and Guangzhou. Two years later, in December, 2006, the foreign investment ceiling rises to 35 percent and the 14 additional cities become open to service. The final stage, effective in December, 2007, raises the foreign investment ceiling to 49 percent with no geographic restrictions.

The following paragraphs summarize these commitments: For **value-added services** (electronic mail, voice mail, on line information and database retrieval, electronic data interchange, enhanced facsimile, code and protocol conversion, on-line information and data processing, including transaction processing) and **paging services**:

<u>Phase</u>	<u>Date of effect</u>	<u>Foreign investment limit</u>	<u>Applicable to the geographic areas of:</u>
1	Upon accession	30 percent	Beijing, Shanghai, and Guangzhou
2	One year after accession	49 percent	Above plus 14 additional cities*
3	Two years after accession	50 percent	All of China

For **mobile voice and data services** (analog and digital cellular services, personal communications services):

<u>Phase</u>	<u>Date of effect</u>	<u>Foreign investment limit</u>	<u>Applicable to the geographic areas of:</u>
1	Upon accession	25 percent	Beijing, Shanghai and Guangzhou
2	One year after accession	35 percent	Above plus 14 additional cities*
3	Three years after accession	49 percent	Same as above
4	Five years after accession	49 percent	All of China



For **domestic basic services** (voice services, packet switched data transmission services, circuit switched data transmission services, and facsimile services) and **international basic services** (voice services, packet switched data services, circuit switched data services, facsimile services, and international closed user group voice and data services):

<u>Phase</u>	<u>Date of effect</u>	<u>Foreign investment limit</u>	<u>Applicable to the geographic areas of:</u>
1	Three years after accession	25 percent	Beijing, Shanghai, and Guangzhou
2	Five years after accession	35 percent	Above plus 14 additional cities*
3	Six years after accession	49 percent	All of China

\* Chengdu, Chongqing, Dalian, Fuzhou, Hangzhou, Nanjing, Ningbo, Qingdao, Shenyang, Shenzhen, Xiamen, Xian, Taiyuan, and Wuhan

In addition to permitting foreign investment in its telecommunications services sector, China also agreed to undertake the pro-competitive regulatory obligations contained in the Reference Paper of the WTO Agreement on Basic Telecommunications Services. The Reference Paper includes obligations to establish an independent regulator, define interconnection rights, and prohibit anti-competitive practices.

China's accession agreement includes the following footnotes:

1. China's commitments are scheduled in accordance with the consensus of the parties to the WTO Agreement on Basic Telecommunications Services that services may be offered on a facilities or resale basis and via any technology (technology neutral).
2. All international telecommunications services shall go through gateways established with the approval of China's telecommunications authorities, which will act as an independent regulatory authority in accordance with the principles of paragraph 5 of the Reference Paper.
3. Further liberalization of this sector, including with respect to the foreign equity participation permitted, will be discussed in the services negotiations during the round of trade talks initiated in Doha.

## **Foreign Investment Regulations**

In accordance with China's commitment to open its telecommunications services sector to foreign investment, the State Council issued State Council Order 333, Regulations on Foreign-Invested Telecommunications Enterprises (FITE), in December 2001, that became effective January 1, 2002. These regulations define the terms for foreign companies that want to invest in China's telecommunications services sector.

Any foreign investment in China's telecommunications services operation is required to be in the form of a joint venture with a Chinese partner, in accordance with China's WTO commitments, and is defined in the Foreign Investment Regulations as a "foreign invested telecom enterprise," or FITE.

The Foreign Investment Regulations divides FITEs into two categories: those that provide basic telecom services and those that engage in value-added services. Each of these categories is further subdivided into two further categories: those that provide services on a national basis, or between provinces, autonomous regions and municipal entities; and those that provide service within a province, autonomous region, or municipal entity.

Each of these four types of FITEs is required to meet specific requirements in terms of registered capital, ranging from 1 million RMB for an intra-provincial value-added services provider to 2 billion RMB for a nationwide or inter-provincial/autonomous regional/municipal basic telecom service provider.

The regulations also outline specific requirements for the principal Chinese and foreign entities in the FITE. Both the principal Chinese and foreign investors in a basic telecom services FITE must "have capital and professionals necessary for the services provided." Foreign investors in either basic or value-added FITEs are required to "have a record of sound performance and operating experience in providing" basic or value-added services.

The regulations outline the procedures and requirements for applying for service licenses and the government's review and approval process. As of year-end 2002, MII reported that no applications for FITEs had been filed. While the exact reasons for this inactivity are not known, several possibilities have been proposed. The most widely accepted rationale is that the worldwide slump in the telecommunications industry, combined with what are generally regarded as steep capitalization requirements for establishing a FITE and foreign investment limits of less than 50 percent, have limited the ability and interest on the part of qualified foreign firms to invest in the Chinese telecom services market.

The foreign investment regulations for telecom services clearly illustrate the old maxim that "the devil is in the details." For example, China's WTO offer on basic services simply states that foreign companies will ultimately be allowed to invest up to 49 percent in a Chinese telecom company providing infrastructure-based services, but the foreign investment regulations stipulate that the joint venture must have 2 billion RMB in registered capital. The regulation requiring that foreign investors "have a record of sound performance and operating experience in providing"

basic or value-added services is not defined, and raises questions as to what constitutes a “record of sound performance and operating experience.”

## **Telecommunications Law**

The development of China’s telecommunications law has been a long and laborious process and is not yet finished. The State Council originally tasked MPT with developing a national telecommunications law approximately ten years ago. Over the course of time, the development process had almost become an annual ritual.

MPT (and later its successor organization, the MII) would deliver a draft law to the State Council for consideration. Other ministries and agencies would object to the law because it generally did little more than enshrine the status quo — i.e., China Telecom would remain the dominant national carrier and MPT would look after China Telecom’s interests. The State Council would send the draft law back to MPT with instructions to come up with more pro-competitive regulations. And the whole process would be repeated the following year.

In 2000, MII released a document titled “Regulations on Telecommunications of the People’s Republic of China.” This document is generally regarded as a precursor to what will become China’s telecommunications law. The “Regulations” have been implemented and their effects are being carefully monitored to determine whether any fine-tuning will be necessary before they are submitted to the State Council for adoption as law.

The regulations discuss the lines of responsibility and authority for managing China’s telecommunications sector, define basic and value added services, and outline the rules for business licensing, interconnection requirements, tariffs, and resource allocation.

The regulations also specify the obligations of telecom service providers to their customers and the public interest, the infrastructure and facilities build-out requirements, and the rules governing network protection, public safety, fair competition and privacy. Penalties for violations of the regulations are also spelled out.

Given the long history of foot-dragging by MPT (and to a lesser extent, its successor, MII), most outside observers viewed the new regulations with pleasant surprise. The regulations provided some real evidence that the MII had shifted its focus from being a champion and protector of China Telecom to becoming an independent regulatory agency that would promote fair and open competition among all players.

---

---

## CHAPTER 3: INFORMATION TECHNOLOGY

---

The development of the information technology (IT) industry was highlighted for the first time in China's Tenth Five-Year Plan (2001-2005), signaling recognition from China's top leaders of the industry's significance to the country's economic development and prosperity. These national priorities of "Industrialization Driven by Informatization" include creating a skilled IT workforce, providing incentives for research and development in the technology sector, developing laws that support the growth of the industry and investment in the sector, and promoting the use of information technologies throughout the urban and rural communities. The IT industry has become China's leading pillar industry, averaging 25 percent growth rates over the past five years according to China's Ministry of Information Industry (MII). In addition, China's accession to the World Trade Organization (WTO) in December 2001 has resulted in significant shifts in the landscape of the IT industry throughout the world, making China one of the fastest growing markets for IT products and services.

According to the International Data Corporation (IDC), China's market for IT products and services reached \$22 billion in 2002 and is expected to exceed \$40.2 billion by 2006, representing nearly a 16.3 percent compound annual growth rate (CAGR) during these years. Meanwhile, in that same period, the Asia-Pacific region will grow at 6.5 percent CAGR. In 2002, China surpassed Australia to become the Asia-Pacific region's second largest IT market, after Japan, representing nearly 14 percent of the regional spending.

### *China Ranks Third in Electronics and Second in Worldwide IT Hardware Production*

One year after accession to the WTO, China has surpassed Taiwan to become the world's third largest electronic information producer with sales volumes of 1.4 trillion RMB (approximately 170 billion U.S. dollars).<sup>1</sup> MII predicts that in 2003, China's exports of electronic and information products<sup>2</sup> will reach \$100 billion and those of the software and integrated circuit (IC) industry will reach \$14.5 billion.

China has also become the world's second largest producer of IT hardware (Figure 3-1), ranking behind the United States, and followed by Japan and Taiwan, in that order. China has nearly doubled its IT hardware output between 1999 and 2002. Its lower production and labor costs, investment incentives, and relatively reliable infrastructure have enticed many major U.S., European, Japanese and other Asian IT suppliers to move manufacturing operations there to remain competitive in the world market. This transfer has enabled China to move from the number four position to second in the world in the span of three years. Meanwhile, countries

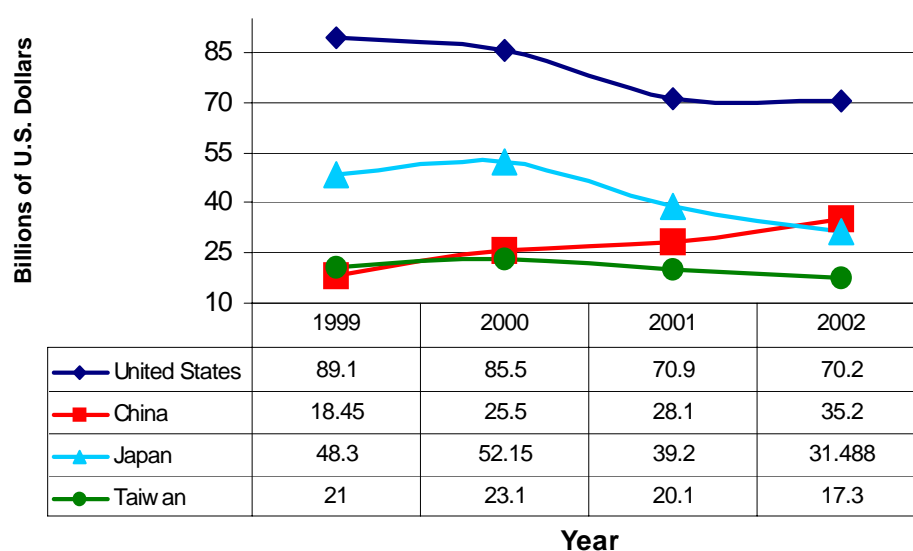
---

<sup>1</sup> Exchange rate of approximately 1 U.S. dollar = 8.1938 RMB

<sup>2</sup> Electronic and information products include computers, telecommunications terminal equipment, monitors, television sets, electronic components, and integrated circuits.

such as Japan and Taiwan, which have historically been viewed as hardware production hubs, have experienced economic downturns and natural disasters that have threatened their share of the world's production of IT hardware. Between 2001 and 2002, Japan and Taiwan's production decreased nearly 20 and 14 percent, respectively. In the case of Taiwan, the shift of hardware manufacturing from Taiwan to China has increased dramatically during this period, from nearly \$15.8 billion in 2001 to an estimated \$22.4 billion in 2002, boosting China's share of Taiwanese IT production to 49 percent.

**FIGURE 3-1: IT HARDWARE PRODUCTION, IN THE UNITED STATES, CHINA, JAPAN, AND TAIWAN, 1999-2002**



Source: JEITA, The Yearbook of World Electronics Data, EIAK, MIC November 2002

## IT HARDWARE MARKET

In 2002, hardware represented 73 percent of the Chinese IT market, followed by packaged software (10 percent) and IT services (17 percent), according to IDC (Figure 3-2). On a regional basis, hardware purchases have accounted for nearly 51 percent of the Asia-Pacific IT market, with China alone representing nearly 20 percent of that amount. China's hardware market was \$16.2 billion in 2002, with IT systems and networking equipment accounting for the majority of this total. The market is expected to grow steadily at 15 percent compound annual growth rate from 2002 to over \$25 billion in 2006.

**Figure 3-2: IT Market in Asia-Pacific vs. China in 2002**

Source: IDC, 2003

***Local PC Makers Dominate the Domestic Market***

China's industrial policies have favored the development of the computer hardware industry, leading to the emergence of successful personal computer (PC) makers, such as the Legend and Founder Groups. Their success is evidenced not only in China but also throughout the Asia-Pacific region. In 2002, Legend and Founder were among the top five PC makers in the region, along with multinationals Hewlett-Packard, IBM, and Dell (Table 3-1). In the same year, China surpassed Japan to become the second largest PC market in the world, behind only the United States.

**TABLE 3-1: TOP 5 PC MAKERS IN ASIA-PACIFIC REGION (EXCLUDING JAPAN) IN 2002**

Company by Rank Order	Market Share (percent)
1. Legend Group	13
2. Hewlett-Packard	9
3. IBM	6
4. Dell Computer	6
5. Founder Group	5

Source: IDC, 2003

Competition in China's domestic PC market is fierce, with domestic PC makers, such as Legend, Founder, and Tsinghua Tofang, maintaining half of the market share. Legend Computer alone dominates the domestic PC market with a 30 percent market share. Foreign PC makers, such as IBM and Hewlett-Packard, had to form joint ventures in the past in order to gain market access into China. Even today, as China is transitioning into a market economy, these same multinationals, some of which have wholly-owned establishments in China, still face challenges

in pricing and competing with the local PC makers' close-knit relationships with government buyers. In 2002, Dell Computer was selling a low-end model on the market for 4,798 RMB (approximately \$586) and cut prices on mid- to high-end models as well in order to gain market share. These price cuts resulted in an increase of 38 percent in PC units sold over the previous year and an 8 percent growth in sales in the first nine months of 2002. Dell's strategy to lower prices has also been countered by Legend's 14 percent price cut on its high-end Tianlin PC to 7,999 RMB (approximately \$976), which underscores the degree of competition in China as Legend and the other domestic PC makers maintain the lion's share of the domestic PC market.<sup>3</sup>

The government's emphasis on increasing the use of information technologies in schools, government, and businesses has led to increased spending on computer hardware. In 2001, China ranked fourth in the world for installed bases in PCs, ranked third in the world for installed bases in the government and education segments of the market, and sixth in the home segment.<sup>4</sup>

The combination of worldwide PC price declines and the government's support of e-government and distance learning have spurred the increase of PC sales. A nationwide sampling survey showed that by the end of 2001, 38 percent of households in the provincial capitals and municipalities owned computers, compared to 28 percent in 2000.

MII estimates that unit PC sales have risen at a 67 percent average annual rate since 1993. According to the China Center for Information Industry Development (CCID) under MII, China's output of desktop PCs reached 6.7 million units in 2001, an increase of nearly 11 percent over the previous year, accounting for 76 percent of China's domestic computer systems market. Northern, Eastern, and Southern China (coastal areas) represented the majority of the purchases. Domestic manufacturers have captured more than 70 percent of desktop sales while U.S. firms have held much of the remainder.

However, competition among desktop PC manufacturers will intensify as the demand for notebooks increase and desktop makers expand their product lines to include notebook computers. The notebook PC market in China is growing rapidly at an annual rate of nearly 40 percent according to the Gartner group. CCID estimates that more than 365,000 notebooks were sold in the first six months of 2002, representing a 44 percent increase over the same period last year. The demand for portable computers is spurred by consumers' desires for mobility, adoption of wireless products, and price declines due to cheaper component costs. According to IDC, the average price of notebooks decreased 18 percent from \$2,261 in 2000 to \$2,171 in 2001. In 2001, many vendors also introduced notebooks priced at less than 10,000 RMB (approximately \$1220). Intense competition in this segment has driven some major local vendors such as Great Wall, Hisense, and Langchao out of the notebook PC market due to difficulties in gaining market share. The distinguishing factor for market leaders Legend, IBM, Toshiba, and Dell has been their ability to provide reliable after-sales service in addition to price and product quality.

---

<sup>3</sup> *The Standard*, December 4, 2002, p. 12.

<sup>4</sup> *Digital Planet 2002*, World Information Technology and Services Alliance, February 2002.



CCID also predicts that the PC server market will grow steadily at 26 percent CAGR between 2002 and 2006. Commercial users are still the major users in China's server market, followed by the education and government segments. According to the China Economic Information, multinationals such as IBM and Hewlett-Packard still maintain the market lead in the high-end server market, whereas domestic server makers control the middle- to low-end markets. The major driver for further growth in this sector is the government's emphasis to increase the use of information technologies among universities, government agencies, and business enterprises.

For the handheld computer devices segment of the hardware market, IDC predicts that demand will grow by more than 20 percent each year from 2002 to more than 5 million units by 2006. China represented 69 percent of the Asia-Pacific handheld market in 2002, an increase of nearly 33 percent compared to 2001. China is the leader in market share, with South Korea in second place at 8 percent (Table 3-2).

Local producers, such as Minren, Legend (30 percent market share), and Hi-Tech Wealth, dominate China's handheld market due to the Chinese language interface requirements and the need for foreign vendors to localize their solutions. In order to penetrate the China handheld market, foreign companies, such as Palm of the United States, are creating strategic partnerships with local producers. Palm will license its operating system platform to companies such as Legend to develop localized versions of software solutions to run on its platform.

According to IDC, the data storage market in China totaled \$474 million in 2002, and is expected to reach \$800 million by 2006, representing a CAGR of 14 percent during this period. Growth in this market will be driven by China's successful bid on the 2008 Olympic Games and the deployment of digital television programs which will require an enormous amount of storage capacity, as well as scheduled upgrades in storage capabilities in the healthcare and education segments of the economy.

**TABLE 3-2: MARKET SHARE FOR HANDHELD COMPUTER DEVICES  
IN ASIA-PACIFIC, 2002**

Country by Rank Order	Market Share (percent)
1. China	69
2. South Korea	8
3. Taiwan	6
4. Hong Kong	5
4. Singapore	5
Rest of Asia-Pacific	8

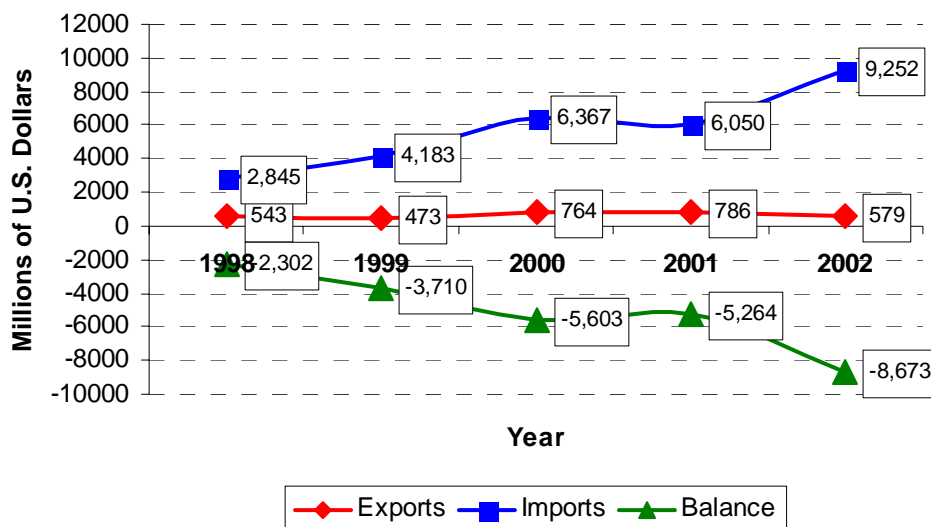
Source: IDC, 2002

### ***U.S. Trade with China in IT Hardware – Significant and Expected to Continue Growing***

The volume of trade in IT hardware (computer systems and peripherals) between China and the United States has nearly tripled between 1998 and 2002. During this period, U.S.

imports have increased significantly at a CAGR of 34 percent, compared to U.S. exports which increased at only a 2 percent CAGR. In 2002, the United States exported \$579 million of computer equipment to China while importing over \$9 billion worth of hardware. In that same year, China was the ninth largest export market for U.S. computer equipment, while ranking first among hardware suppliers to the United States. Although the volume of trade has increased significantly over the years, the trade deficit has quadrupled since 1998 (Figure 3-3). U.S. imports from China increased 53 percent in 2002 while U.S. exports to China decreased 26 percent that year. China's accession to the WTO will contribute to the increased volume of trade between the two countries as U.S. and Chinese IT suppliers will be able to take advantage of the tariff reductions on certain IT equipment and receive equal legal and regulatory treatment as domestic suppliers.

**FIGURE 3-3: U.S. TRADE WITH CHINA IN COMPUTER EQUIPMENT AND PERIPHERALS**



Source: Official statistics from the U.S. Department of Commerce, the U.S. Treasury, and the International Trade Commission.

### *Market Access for IT Hardware Producers*

The Chinese market for IT hardware is relatively open compared to that for services. The maturity of China's manufacturing capabilities, public sector support for investment in the sector, and the growth of the domestic industry are contributing factors to the Chinese government's willingness to allow greater competition in the hardware segment. With China's accession to the WTO, foreign hardware producers anticipate equal access to and treatment in the China market as enjoyed by their local competitors in certain areas such as tariffs and certification requirements.

**Reduced Tariffs.** Between 1992 and 1999, China reduced its tariff rates five times, from an average rate of 43 percent to 17 percent. Upon accession to the WTO in December 2001, China agreed to sign the Information Technology Agreement (ITA). This means that China will eliminate tariffs on two-thirds of the products under the ITA by January 1, 2003 and for all the remaining products by January 1, 2005. Industry estimates that U.S. IT firms will save nearly \$500 million in tariffs in 2002 alone. According to MII, 122 ITA products have already been exempted from duties since January 1, 2002, and that tariffs have been reduced on average from 12.5 percent to 3.5 percent by the beginning of 2002.

**Certification requirements.** Prior to China's accession to the WTO, U.S. IT companies selling their products in China required two marks – one to satisfy China's import requirements (CCIB mark) and one to permit the sale of the product in the domestic market (CCEE or Great Wall mark) for electromagnetic compatibility (EMC) and safety. The two marks have been merged into a new China Compulsory Certification (CCC) mark, required on all products - domestic and imports - on a 132-product list. There are 12 IT products affected by the CCC mark.<sup>5</sup> The Certification and Accreditation Administration of China (CNCA), under the State General Administration for Quality Supervision, Inspection and Quarantine (AQSIQ), administers the CCC mark. The new system became effective May 1, 2002 and grants existing CCIB and CCEE mark approved products a 12-month conversion period (Figure 3-4).

FIGURE 3-4: EXAMPLES OF THE CCC MARK



Source: CNCA, 2002

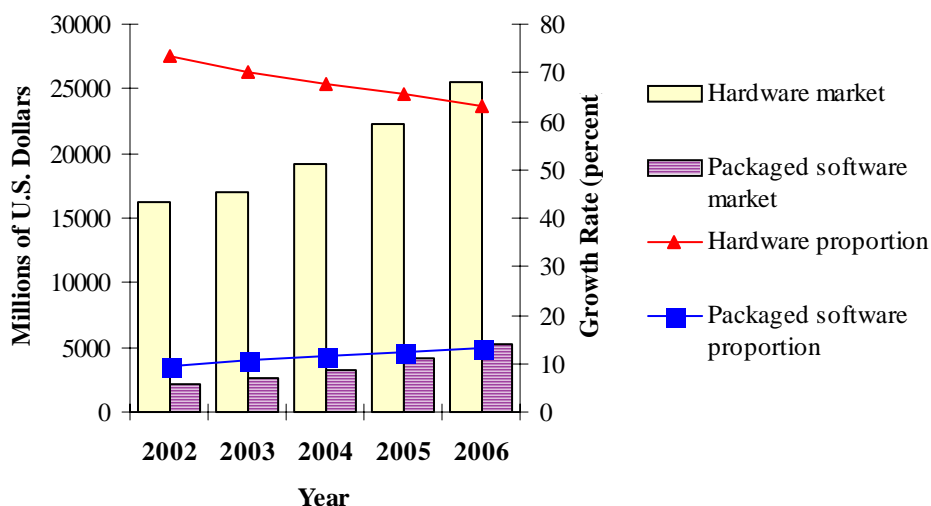
## SOFTWARE MARKET

China's software market has experienced steady growth, exceeding 30 percent year-on-year since 1999. According to IDC, China's packaged software market reached \$2.1 billion in 2002. By 2006, the segment is expected to more than double in size to \$5.3 billion. Despite this growth, the software segment will still be less than one-sixth of the overall IT sector (Figure 3-5).

<sup>5</sup> The twelve IT products requiring the CCC mark include personal computers and portable personal computers, display units connected to computers, printers connected to computers, multiplying printer and copying machines, scanners, switching power supply units for computer and adapters, chargers, computer game players, learning machines, duplicators, servers, finance, and trade settlement equipment.

CCID estimates that in 2001, 64 percent of the software market was comprised of applications, 30 percent consisted of platform software, and the remainder was middleware.

**FIGURE 3-5: PROPORTION OF THE HARDWARE AND SOFTWARE SECTORS OF THE CHINA IT MARKET, 2002-2006**



Source: IDC, 2003

### *China's Software Purchasers are Becoming More Sophisticated*

Most of China's software purchases have been in the low-end applications market, as only 10 percent of Chinese enterprises have deployed enterprise resource planning (ERP) solutions and only 6 percent are using supply chain management (SCM) solutions. However, these trends in the market are quickly changing as China's consumers become more exposed to international technology trends. According to CCID Consulting, sales of ERP software reached 870 million RMB (approximately \$106 million) in 2001, representing 71 percent increase over 2000.

As the number of Internet users continues to rise, the demand for security-related software has also grown. According to the Hong Kong Trade Development Council, China's firewall and anti-virus software market represented 33 percent and 39 percent, respectively, of the overall software segment of the IT market. The number of domestic software vendors offering solutions has also increased significantly in a very short period of time. Jiangmin, Kingsoft, and Rising are among the domestic market leaders. These solutions providers are targeting two main clienteles – those who play games regularly on the Internet and government agencies requiring network security.

China's successful bid for the 2008 Olympic Games as well as its membership in the WTO will be the main drivers for the growth in the software market and industry over the next several years. The heavy IT purchasers in the banking and telecommunications sectors are also becoming more sophisticated in their requirements. In late 2001, some of China's telecommunications

companies began to require Common Object Request Broker Architecture (CORBA) compliance from their software suppliers.<sup>6</sup> As domestic companies become more attuned to the technology demands of their customers, software vendors selling in China will need to meet these needs. Domestic software developers, in particular, will need to improve their software development skills to compete effectively in the domestic market against the more experienced foreign software vendors.

On the supply side, most domestic software developers have focused on developing low-end applications software (e.g., accounting and financial management software), where they have captured 90 percent of the market, according to China Economic Information. Local companies have been able to control the market with niche applications, such as accounting software, because accounting methods in China differ from other parts of the world. They are able to provide the best and most appropriate solutions for consumers in this functional area. Foreign software companies continue to control the high-end market, such as the customer relationship management (CRM) and supply chain management (SCM) segments. Companies such as SAP (Germany) and Oracle (United States) maintain a strong presence in the market because their complete product lines allow customers to not only manage their financial systems centrally, but also manage their supply chain and plan future production.

### ***Linux versus Microsoft***

According to CCID Consulting, the platform software market reached 8.6 billion RMB in 2001 (approximately \$1 billion). The open source platform movement has caught the attention of Chinese government leaders in the past few years. IDC predicts that client-based Linux usage will grow 39 percent, compared to 11 percent for Windows usage, and server-based Linux usage will grow 41 percent annually compared to only 8 percent for Windows servers. Authorities have found the Linux open source model appealing compared to proprietary software such as those marketed by Microsoft and other Unix suppliers because it allows them to monitor what computer users are doing more closely, and the source code is free. In addition, because the source code can be viewed and further developed by anyone, authorities also believe that Linux applications could more quickly help spur the growth of a more sophisticated domestic software industry and enhance the development of China's own operating system.

As a result, MII and the Chinese Academy of Sciences have invested in a Linux-based software distribution company, named Red Flag Linux. As an effort to widely distribute Linux throughout the country, Red Flag Linux will donate 2,000 copies of the Linux operating system to schools throughout China. Despite the popularity of the open source model among government authorities in China, Microsoft Windows operating systems will continue to maintain the dominant share in the platform market due to their user-friendliness and the variety of Chinese-language applications developed for them. In addition, China's rampant piracy problems will

---

<sup>6</sup> According to the Object Management Group (OMG), CORBA is OMG's open, vendor-independent architecture and infrastructure that computer applications use to work together over networks. Using the standard protocol IIOP, a CORBA-based program from any vendor, on almost any computer, operating system, programming language, and network, can interoperate with a CORBA-based program from the same or another vendor, on almost any other computer, operating system, programming language, and network.

prevent the widespread use of Linux. Experts estimate that 90 percent of Windows operating systems are unlicensed copies that sell for less than one dollar on the black market. Microsoft has recognized the Chinese government's interest in the open source platform, and during Microsoft Chairman Bill Gates' meeting with President Jiang Zemin in late February 2003, he agreed to provide the Chinese government access to the Windows source code. On February 28, 2003, China's Information Technology Security Certification Center signed an agreement with Microsoft to participate in the company's Government Security Program. This program permits government officials to receive controlled access to the Windows source code and other technical information to address their national security concerns.

### ***Government Support to Boost Software Development***

Over the years, China has cultivated a successful domestic hardware industry through state-funded research and development of new technologies, as well as tax incentives. In addition, hardware producers have traditionally bundled software into the hardware as part of the total package to be sold on the market. As a result, the software industry in China lags significantly behind world market leaders. China's top leaders have recognized this disparity and have shifted industrial policies in favor of the development of the software industry (Table 3-3). China has issued a number of policies ranging from export incentives to value-added tax rebates and financial assistance to small businesses, as well as laws addressing intellectual property rights protection.

**TABLE 3-3: EXAMPLES OF REGULATIONS GOVERNING THE SOFTWARE INDUSTRY IN CHINA  
2000-2002**

<b>LAW</b>	<b>ISSUING AGENCY</b>	<b>SUMMARY</b>
Clarification on Restriction on Use of Encryption Products (2000)	General Office of the State Encryption Administration Commission	Provides clarification to October 1999 encryption regulations requiring all products with encryption technology be registered with the State Encryption Administration. The clarification notice states that only products that include encryption as their core technology will require registration. In other words, wireless handsets and operating systems software would not require registration.
Notice of Certain Policies to Promote the Software and Integrated Circuit Industry Development (2000)	State Council	Outlines a number of incentive policies to the development of a domestic encourage software and integrated circuits industry, including: a venture capital mechanism to help finance software companies, establishment of software parks, and value-added tax rebates to be used for research and development of targeted industries. <sup>7</sup>
Software Enterprise Recognition Standards and Administration Measures (2000)	Ministry of Information Industry, Ministry of Science and Technology, Ministry of Education, State Administration of Taxation	Describes the rules and procedures under which software companies can qualify for incentives under the “Notice of Certain Policies to Promote the Software and Integrated Circuit Industry Development.” Computer software industry associations are authorized as the “recognition bodies.” Among requirements of a qualified software company include a 35 percent annual income comprised of software sales.
Notice Concerning Issues Related to the Export of Software (2001)	Ministry of Information Industry, Ministry of Foreign Trade and Economic Cooperation, State Administration of Taxation, General Administration of Customs, State Administration of Foreign Exchange, State Statistics Bureau	Describes incentives to encourage software exports. These incentives include export rights, financial incentives for small-to-medium-sized businesses, financial assistance to receive Capability Maturity Model (CMM) certification, and favorable rules for foreign exchange obtained from exports.
Registration of Copyright in Computer Software (2002)	National Copyright Administration	Registration of copyright in software of exclusive license and assignment contracts; qualifying software must be independently developed or have significant value-added functionality after receiving permission from the original copyright holder.

Source: China Legal Change

<sup>7</sup> Note: companies are eligible for the value-added tax (VAT) rebate only under certain conditions. The normal VAT is 17 percent for software and integrated circuit (IC) design and manufacturing companies. The refund reduces the effective VAT rate for certified software companies from 17 percent to 3 percent. Domestic manufacturers of ICs are eligible for a refund of VAT paid above 6 percent, if their investment in China exceeds RMB 8 billion and they produce chips with line widths below 0.25 microns.



***China's Software Development Goals***

China's goal is to increase its share of the world's software market from its current share of 1.2 percent to 3 percent by 2005. Chen Chong, President of the China Software Industry Association, predicts that China's software and related services industry will be worth 250 billion RMB (approximately \$30.5 billion) by 2005. In addition, China will have over 20 software companies with annual revenues exceeding 1 billion RMB (approximately \$125 million) and will popularize brand names for over 100 software products. In order to accomplish this goal, China's software companies would need to control over 60 percent of the domestic market and export \$3 billion annually. China will also train to produce 20,000 to 30,000 software professionals annually in order to realize this goal.

According to Chen, the domestic software industry's sales rose 39 percent in 2001 to 33 billion RMB (approximately \$4 billion). China has over 10,000 enterprises and 400,000 people engaged in the software and software services industry. By 2002, China had 1,023 higher education institutions that offered computer and software programs, recruiting a total of 586,000 students. The Ministry of Education and the State Development Planning Commission have also established 35 software colleges to train and develop a skilled base of software programmers.<sup>8</sup>

In June 2001, the State Development Planning Commission (SDPC)<sup>9</sup> and MII granted licenses to eleven software bases to speed up the development of the domestic software industry. All eleven software bases are located in relatively large cities, near universities and scientific institutions.<sup>10</sup> Prior to the establishment of the software bases, China already had approximately 48 software parks that were part of high-tech zones spread throughout the country and administered by the Ministry of Science and Technology through China's Torch Program (see "Overview Chapter") to develop the high-tech industry.

---

<sup>8</sup> The 35 software colleges are: Peking University, Tsinghua University, Beijing Polytechnic University, Beijing University of Aeronautics and Astronauts, Beijing University of Post and Telecommunications, Beijing Technology Institute, Nankai University, Tianjin University, Northeastern University, Dalian University of Technology, Jilin University, Harbin Institute of Technology, Fudan University, Tongji University, Shanghai Jiaotong University, Eastern China Normal University, Nanjing University, Southeast University, Zhejiang University, University of Science and Technology of China, Shandong University, Wuhan University, University of Science and Technology of Central China, University of National Defense, Hunan University, Zhongshan University, South China University of Technology, Chongqing University, Sichuan University, University of Science and Technology of China, Yunnan University, Xi'an Jiaotong University, Northwestern Polytechnic University, Xidian University, and Hangzhou Electronics Industry College.

<sup>9</sup> At the National People's Congress (NPC) meeting in March 2003, SDPC was renamed the State Development and Reform Commission and given the responsibility for the nation's economic restructuring.

<sup>10</sup> The 11 software bases administered by MII and SDPC are: Beijing Zhonghuancun Base, Shanghai Pudong Software Park, Dalian Software Base, Chengdu Software Base, Xi'an Software Base, Jinan Software Base, Hangzhou Software Base, Guangzhou Software Base, Changsha Software Base, Nanjing Software Base, and Zhuhai Software Base.

***Is China capable of developing a world-class software industry?***

China is increasingly becoming known for software outsourcing. India, the second largest software exporting country after the United States, is watching the development of the Chinese software industry very closely to gauge how soon China will become a significant threat to India's own industry. Although China's leaders are attempting to duplicate the Bangalore software development model, many structural impediments remain in the short-term that will inhibit fast growth of the industry.

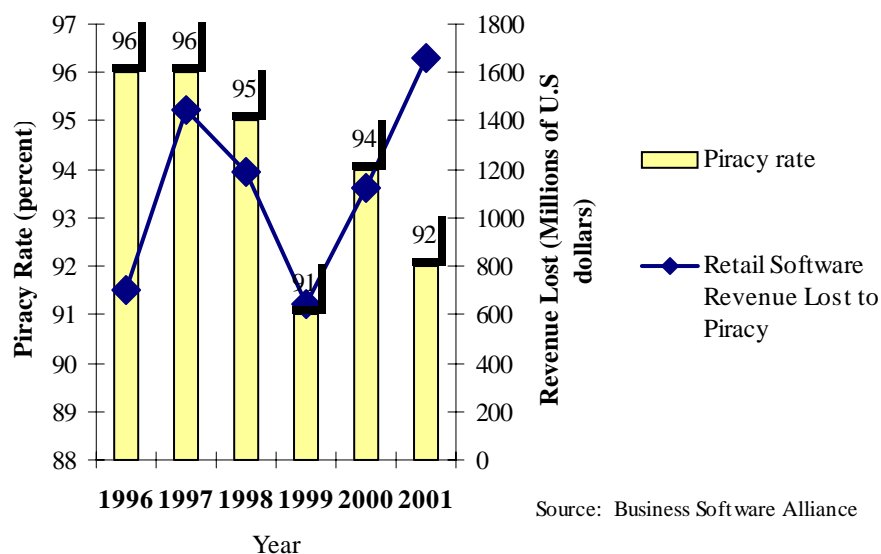
First of all, the majority of software programming in China is for the outsourcing segment. The quality of software developers is not comparable to that of professionals in more mature software markets. Only a few domestic software companies have received the capability maturity model (CMM) certification, which is an internationally accepted standard for assessing the level and quality of software development processes.

Secondly, China currently lacks an entrepreneurial environment that fosters innovation. Software programming and development require imagination as well as business intuition. The product life cycle of software is so short that, in order to beat the competitor to the marketplace and fulfill the needs of the consumers, innovative software developers are increasingly required for suppliers to effectively survive in the software market. Even though China has established several software colleges and software bases to encourage innovation, it still remains to be seen whether training programs will effectively foster the entrepreneurial spirit seen in the "Silicon Valleys" of the world.

While China has established several software parks, encouraged universities to develop software training programs, and provided tax and investment incentives for software development, the government has also recognized that the alarming piracy rate remains the most outstanding hindrance to the growth of China's software industry.

***Piracy is still a serious problem.***

According to the Business Software Alliance's June 2002 Piracy Study, China had a 92 percent business software piracy rate in 2001, accounting for nearly \$1.7 billion in retail software revenue losses due to copyright violations (Figure 3-6). Although the piracy rate did decrease two percentage points from 2000, the dollar value of losses increased by over \$500 million. Since 1996, China has not been able to reduce its piracy rate to below 90 percent. It had the second highest piracy rate in the Asia-Pacific region, which averaged 54 percent in 2001, and accounted for 35 percent of the revenue losses in the region due to piracy. In comparison to other parts of the world with strong software markets, such as North America and Western Europe where the piracy rates in 2001 averaged 26 percent and 37 percent, respectively, China needs to strengthen its intellectual property rights protection laws and enforcement mechanisms at the national, provincial, and municipal levels significantly to develop a domestic software industry and compete internationally.

**FIGURE 3-6: PIRACY RATE IN CHINA VS. REVENUE LOST DUE TO PIRACY 1996-2001**

The largest obstacle to deterring piracy in China is corporate end-user piracy. While PC prices have declined significantly over the years, packaged software prices have not. Using pirated versions of applications software sold on the black market for a fraction of the cost of the legal licensed version is a regular practice among most businesses. The Computer Software Protection Regulations define rights and obligations of computer software use but do not explicitly prohibit software piracy. Copyright authorities at the local level are usually small offices, making enforcement quite difficult. China's accession to the WTO and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) will pressure China to become more aggressive in enforcing its intellectual property rights protection laws.

### *Can foreign companies compete with SOEs?*

Despite China's membership in the WTO and the creation of policies that encourage investment in the software sector, government authorities have created situations that favor state-owned enterprises (SOEs) in some cases. As part of a government contract, a government agency could require companies to obtain a Certification of Capability and Quality that is issued by MII at the national, provincial, and municipal levels.<sup>11</sup> Whether MII will grant this certificate depends on a firm's total net assets, registered capital, and annual revenues, rather than the ability of the company to complete the work requested. By most accounts, it is very difficult for a private sector company to receive such a certificate based on these standards.<sup>12</sup>

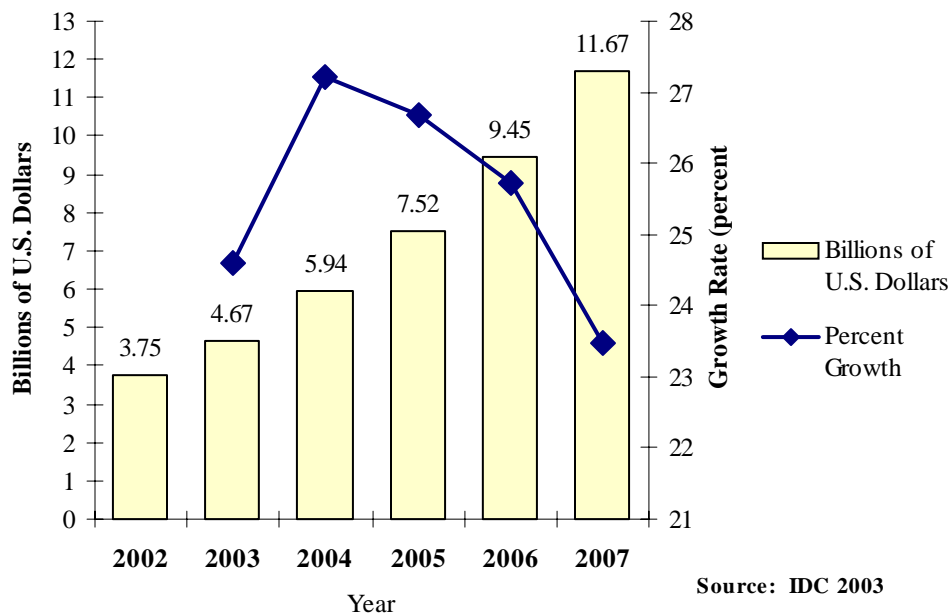
<sup>11</sup> Brizendine, Thomas, *Software Integration in China*, *The China Business Review*, March-April 2002, p.28.

<sup>12</sup> China is not a signatory to the WTO Government Procurement Agreement (GPA), which requires signatories to select contractors based on performance standards. Upon accession to the WTO in December 2001, China did agree to consider joining the GPA two to three years after accession and after reviewing its current government procurement laws to ensure that they are consistent with GPA provisions.

## IT SERVICES MARKET

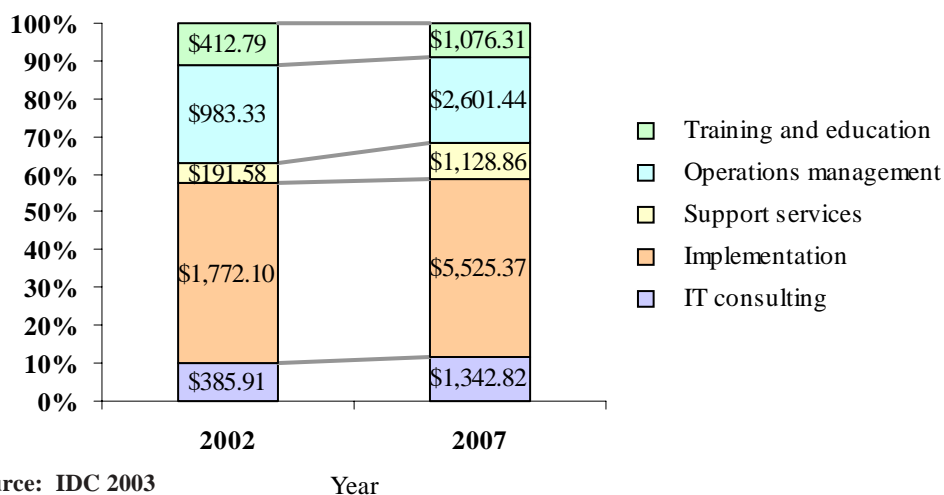
According to IDC, China's market for IT services is expected to reach \$4.7 billion in 2003, representing an increase of nearly 25 percent over the previous year (Figure 3-7). In the next four years, China's IT services market is expected to reach \$11.7 billion, growing at CAGR of nearly 26 percent between 2003 and 2007.

**FIGURE 3-7**  
**IT SERVICES MARKET AND GROWTH 2002-2007**



Implementation services represent the largest proportion of IT services market in China (Figure 3-8), followed by operations management services. In 2002, implementation services reached nearly \$1.8 billion, which represents 38 percent of the total IT services market. By 2007, this segment will exceed \$5.5 billion and account for 47 percent of the total market. While IT services represents a relatively small portion of the total IT market compared to hardware, this segment is expected to grow substantially as the notion of procuring IT services becomes more widely accepted in China.

**FIGURE 3-8**  
**IT SERVICES MARKET IN CHINA BY SEGMENT IN 2002 AND 2007**  
**(MILLIONS OF U.S. DOLLARS)**



Local companies, such as Digital China and Legend, control the IT services market in China. In 2002, eight Chinese companies were among the top ten IT services providers. Their established sales networks among banks, manufacturers, and government agencies for computer hardware helped strengthen their client base for IT services. IBM, Hewlett-Packard, and EDS are among the major U.S. players in this market segment.

## INTERNET MARKET

### *Structure of China's Internet*

According to the China Internet Network Information Center (CNNIC), China's total bandwidth has reached 2.8 giga bits per second (Gbps). China currently has five Internet backbones: China Telecom's ChinaNet, China Unicom's UniNet, China Golden Bridge Network (China GBNet), China Science and Technology Network (CSTNet), and China Education and Research Network (CERNet). Two of the five networks are run by commercial operators - China Telecom's ChinaNet, which is the largest backbone network, and GBNET, built by China Jitong.

### *Only 5 percent of China's population has access to the Internet, but user base growing rapidly*

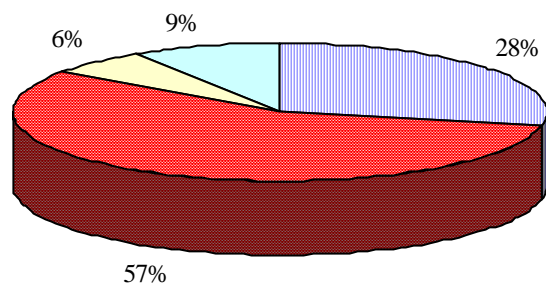
The growth of the Internet in China has been astounding. The first commercial Internet accounts were established in 1995 when MII and China Telecom set up the first commercial network, called ChinaNet. At that time, only 15,000 people were online. By January 2003, the number of Internet users in China reached 59.1 million, representing nearly 5 percent of China's population of 1.3 billion, and making China the second largest home Internet population after the United States. The number of Internet users increased 75 percent since the beginning of 2002. Even taking into account the rapid growth of the Internet population in China, there remains a huge

potential market for the remaining 95 percent of the population who still have not accessed the Internet.

### *Most access the Internet through dial-up connections*

The majority of Internet users (57 percent) accessed the Internet through a dial-up connection (Figure 3-9), followed by leased lines at 28 percent. The way people access the Internet is beginning to diversify in China. The number of users using leased lines increased over 200 percent since January 2002, while the number of dial-up users increased 91 percent in this same period.

**FIGURE 3-9: METHODS OF INTERNET ACCESS IN CHINA**



Source: CNNIC, 2003

■ Leased Lines ■ Dial-up ■ ISDN ■ Broadband

Although broadband access is still low (only 4 percent of the total Internet population), Strategy Analytics, a market research firm, predicts that nearly 37 million homes in China will use broadband by 2008, compared to the 2.9 million households in 2002 (Figure 3-10). The majority of broadband users will subscribe to digital subscriber loop (DSL) services. The market research firm, In-stat/MDR, predicts that China will lead the Asia-Pacific region in the number of

broadband subscribers, reaching 30 to 40 million subscribers by 2006. The Chinese government has cited broadband development and deployment in the Tenth Five-Year Plan as one of the key drivers to encourage innovation and growth of the IT industry.

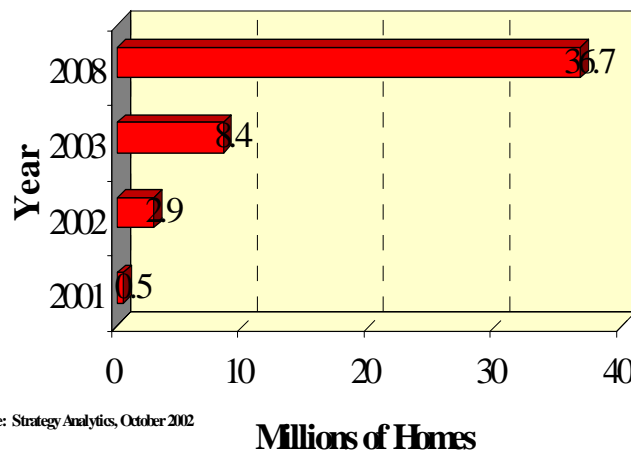
### *Profile of Internet Users in China*

According to CNNIC's latest Internet survey, the majority of China's Internet users are between the age of 18 to 24, are unmarried, are males, have at least a high school diploma, and are in the relatively low income bracket. The industry distribution of Internet users has also diversified over the years. Previously, most users were either students or in research institutions. Now, the industry distribution has spread across such sectors as wholesale and retail and the financial and insurance industries.

Nearly 63 percent of Internet users accessed the Internet from home as of January 2003 (Figure 3-11), representing an increase of 2 percentage points since the beginning of 2002. During that same period, the number of users accessing the Internet from the office has decreased from 46

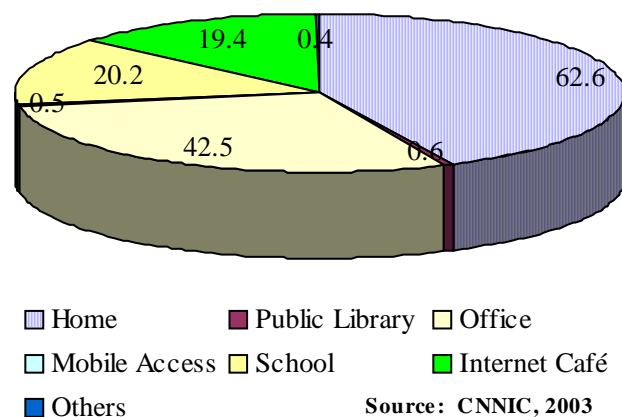
percent to 43 percent. The change in behavior could be due to cheaper Internet access charges and the increased numbers of PCs at home.

**FIGURE 3-10**  
**RESIDENTIAL BROADBAND HOUSEHOLDS IN CHINA, 2001 - 2008**



PC desktops are still the main access device for Internet users, representing over 97 percent of Internet access devices. The number of hours spent online per week has decreased from an average of 17 hours since the beginning of 2002 to 10 hours by January 2003. The primary reason for accessing the Internet is still for information gathering. The most popular online services used include e-mail, search engines, software uploading and downloading, and chatting. Cheaper charges for Internet access along with faster connections to the Internet (increased broadband deployment) will be key drivers to the development of China's Internet market.

**FIGURE 3-11: PROPORTIONS OF MAIN INTERNET ACCESS LOCATIONS (IN PERCENT)**





### ***State Control of the Internet***

China's regulation of Internet content has been widely monitored by the international business community with shutdowns of Internet cafes, censorship of websites that the government considers "harmful content," and the temporary takedown of search engines such as Google in September 2002. According to a study on China's Internet filtering practices conducted by Harvard University's Berkman Center for Internet and Society, the Chinese government is blocking close to 10 percent of websites. China's continual filtering of content on the Internet could hamper the innovation and entrepreneurial spirit that has helped grow the Internet economy throughout the world.

The *Provisional Regulations for the Administration of Internet Publishing* was issued by the State Press and Publications Administration and MII on June 27, 2002 and became effective August 1, 2002. According to the English-language China law publication, *China Legal Change*, "Internet publishing" is defined to mean "the online transmission acts by Internet information service providers of posting on the Internet, or sending to user terminals through the Internet, after selection and editing, works created by themselves or others for browsing, reading, use or downloading by the public". The regulations also included provisions on the types of content that are prohibited on the Internet.

Government authorities' attempts to regulate the Internet have been countered by hackers who use proxy servers as gateways to sites that have been blocked by the government. A Chinese Academy of Sciences study in 2000 revealed that 25 percent of China's Internet users accessed blocked sites through proxy servers. Internet users have also used freeware, such as Safeweb's Triangle Boy, that they can download for free and whose technology can trick the government's electronic filters.

In March 2002, approximately 300 enterprises signed China's first Internet self-discipline pledge, called the "Public Pledge on Self-discipline for China Internet Industry." The main purposes of the pledge are to promote Internet use, prevent cyber crime, encourage healthy industry competition, and prevent intellectual property rights violations. The pledge does, however, include language supporting the Chinese government's censorship of the Internet. For example, Internet Service Providers (ISPs) are responsible for removing harmful content on websites they host. Signatories to the pledge must remove harmful content from their website(s) or be removed from the group.

Among the most popular Internet Content Providers (ICPs) are sohu.com, sina.com, and 163.com. The range of Chinese language content available on ".cn" websites is limited due to the government's control of content, and ISPs' and ICPs' liability for this content. As a result, the demand for uncensored Chinese language content is high, and many Internet users in China access Chinese language websites that originate outside of the Chinese government's control. Some portals have Chinese language sites that can be accessed from their U.S. server.

According to China's regulations, ISPs are categorized as providing value-added services. Wholly owned foreign ISPs are not permitted in China. Most foreign companies can only access China's Internet market through joint ventures with a local partner. For example, in June 2001, AOL-Time Warner signed a \$200 million joint venture with China's major PC producer, the Legend Computer Group. Each party contributed \$100 million to set up a new company that provides interactive services to Chinese consumers through Legend's FM365.com portal site. Up until now, AOL-Time Warner has mainly contributed technical and consulting services for this site. In early 2003, AOL-Time Warner and the Legend Group announced that they will put this deal on hold to review to develop a viable business model post-WTO. China permits private companies to operate ISPs, although ultimately all bandwidth is leased from licensed Internet gateways. Competition in the ISP market is fierce with narrow profit margins. Internet access charges to consumers are relatively low compared to operating costs.

### ***Foreign Participation in China's Internet Market***

Prior to China's accession to the WTO, foreign companies could not participate in China's Internet market. As part of China's accession package, foreign companies can apply for a value-added services license through a joint venture with a Chinese partner. China defines value-added services as telecom and information services that are delivered via the fixed-line network, mobile phone network, and Internet and other data transmission networks. Upon accession, foreign firms were allowed a 30 percent stake in a joint venture that is licensed to operate in Beijing, Shanghai and Guangzhou. In 2002, the foreign company's equity stake could increase to 49 percent and the geographical easing of restrictions was expanded to 14 major cities in China<sup>13</sup> in addition to the above cities. By 2003, equity can increase to 50 percent and the remaining restrictions on other geographic areas will be completely lifted. For more details, see Chapter 2 on Telecommunications.

---

<sup>13</sup> These 14 cities include Chengdu, Chongqing, Dalian, Fuzhou, Hangzhou, Nanning, Ningbo, Qingdao, Shenyang, Shenzhen, Xiamen, Xi'an, Taiyuan, and Wuhan.



---

---

## CHAPTER 4: ELECTRONIC COMMERCE

---

---

With a population of 1.3 billion, China may have the greatest potential of all Asia/Pacific countries to experience exponential growth in its e-commerce sector. In recent years, China has witnessed a dramatic increase in its population's use of the Internet. According to the China Internet Network Information Center (CNNIC), in January 2003, there were 59 million Internet users in China, a growth of nearly 73 percent since June 2001.<sup>1</sup> In addition, E-businesses in China are multiplying almost as fast as Internet users. An estimated 78 percent of all Chinese websites are now operated by "enterprises" and 5 percent are operated by "businesses".<sup>2</sup>

Despite these developments, only 34 percent of Internet users in China are currently purchasing goods and services on-line.<sup>3</sup> Moreover, only 11 percent of Chinese "enterprise" websites and 45 percent of Chinese "business" websites offer "e-commerce services".<sup>4</sup>

There are several reasons why Chinese consumers and businesses are not yet buying online in large numbers. The use of credit payment systems is not widespread in China; online merchants are not yet fully trusted; security of electronic payments cannot be guaranteed; and inefficient delivery systems prevail in most of the country. Moreover, China has yet to develop a legal framework conducive to the rapid growth of e-commerce in the country. Laws recognizing the validity of "e-contracting" tools such as electronic signatures and authentication technology, as well as the importance of online security, have been proposed, but not fully implemented.

As a result of these factors, neither the Business-to-Consumer (B2C) nor the Business-to-Business (B2B) e-commerce sectors in China have been able to reach their full potential. Nevertheless, despite the challenges faced by China's e-commerce sector, there is reason to be optimistic. While other countries have experienced a marked decline in the growth of e-commerce due to the recent global economic downturn, some observers have estimated that China's e-commerce sector (B2B and B2C) is expected to grow from \$15.6 billion (2002) to \$98.8 billion in 2006.<sup>5</sup>

---

<sup>1</sup> China Internet Network Information Center (CNNIC), *Semiannual Survey Report on the Development of China's Internet* (July 2001, July 2002 and January 2003), <http://www.cnnic.net.cn/develst/repindex-e.shtml>.

<sup>2</sup> CNNIC, *Survey Report on the Quantity of China's Internet Information* (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>. According to CNNIC, "'business' websites refers to those fictitious network-like websites, e.g. such '.com' companies as sina and sohu. 'Enterprise' websites are opposite to the business websites— those founded by enterprises whose operation is mainly off- line". Id.

<sup>3</sup> CNNIC, *Semiannual Survey Report on the Development of China's Internet* (January 2003), <http://www.cnnic.net.cn/develst/2002-7e/index.shtml>.

<sup>4</sup> CNNIC, *Survey Report on the Quantity of China's Internet Information* (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>.

<sup>5</sup> United Nations Conference on Trade and Development (UNCTAD), *E-commerce and Development Report 2002*, pg. 14, <http://www.unctad.org>. Data based on UNCTAD and private sector research calculations. Figures include data for Hong Kong, as well as the People's Republic of China.

Furthermore, the central government has stepped up its national “informatization” campaign and is continuing its work on developing a legal framework for e-commerce. These steps should encourage more Chinese businesses and consumers, as well as the government itself, to go online. Finally, China’s recent accession to the World Trade Organization (WTO) should result in greater foreign competition and investment in China’s e-commerce market, thereby spurring the development and introduction of more efficient mechanisms for online payment, delivery and Internet security.

## **BUSINESS –TO- BUSINESS ELECTRONIC COMMERCE**

While B2B e-commerce in China remains small in comparison to other countries, there is evidence that the market continues to expand. In 2000, it was estimated that there were an estimated 370 B2B websites in operation in China and that the size of the B2B market was approximately \$9 billion.<sup>6</sup> In addition, 16 percent of all “business” websites and 5 percent of all “enterprise” websites in China now offer B2B e-commerce services.<sup>7</sup> Since some observers are now predicting that B2B will account for 88 percent of all global online sales in 2006,<sup>8</sup> it is likely that the B2B market in China will follow this trend. In fact, recent studies indicate that the Chinese B2B market will continue to expand rapidly, perhaps totaling as much as \$22 billion by 2006.<sup>9</sup>

While many organizations, including state enterprises and joint ventures, have begun to implement B2B strategies, the vast potential for B2B e-commerce in China has not yet been realized. The current B2B market in China is exemplified by a small number of innovative firms that have begun to supply e-business infrastructure products and solutions as an extension of their normal operations. One such company is Digital China, a division of Legend Holdings Limited, China’s largest manufacturer of personal computers. Digital China has recently developed China’s largest B2B web-platform. Digital China’s B2B activities have enabled the company to become one of the largest information technology distributors in the Asia/Pacific region and the company estimates that it will reach sales revenue of \$4 billion by 2005.<sup>10</sup>

Another example of B2B success in China is the China National Cereals, Oils & Foodstuffs Corporation (COFCO), a distributor of various food products that has recently teamed with several U.S. firms, including Archer Daniels Midland Company, on an e-commerce platform, foodchina.com. The company is also currently developing an e-procurement system, with the assistance of IBM. COFCO expects that its online B2B systems will better facilitate trade between the company, its suppliers, and customers.<sup>11</sup>

---

<sup>6</sup> United States & Foreign Commercial Service (US&FCS China), *Internet Services Industry Sector Analysis* (October 18, 2001).

<sup>7</sup> CNNIC, *Survey Report on the Quantity of China’s Internet Information* (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>.

<sup>8</sup> Elaine X. Grant, *Study: E-Commerce to Top \$1 Trillion in 2002*, E-Commerce Times, online edition; <http://www.ecommercetimes.com>, February 13, 2002.

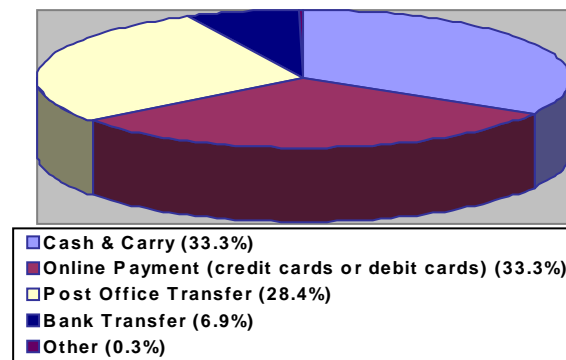
<sup>9</sup> UNCTAD, *E-commerce and Development Report 2002*, pg. 13, <http://www.unctad.org>, citing data from eMarketer.

<sup>10</sup> Digital China informational brochure and interview with company officials (Beijing, June 2002).

<sup>11</sup> Interview with COFCO company officials (Beijing, June 2002).

However, while the potential remains high for B2B in China, there are a number of factors inhibiting further growth in the sector. Perhaps the greatest obstacle to the development of e-commerce in China is the country's traditional "cash and carry" culture and the lack of online payment use. While the use of bank debit cards has increased significantly in recent years, few businesses (or consumers) utilize credit cards, thereby inhibiting the efficient payment of B2B goods and services (See Figure 4-1).

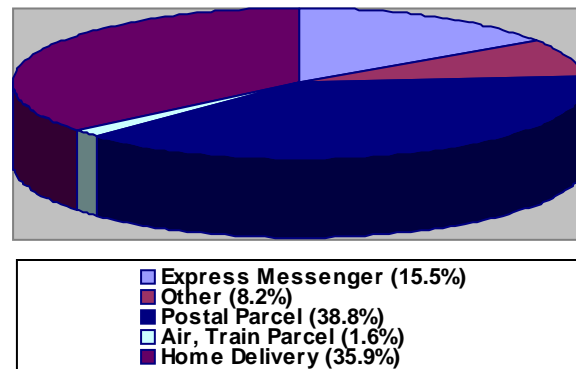
**FIGURE 4-1: E-COMMERCE PAYMENT METHODS IN CHINA**



Source: CNNIC, Semiannual Survey Report on the Development of China's Internet (January 2003), <http://www.cnnic.net.cn/develst/repindex-e.shtml>

In addition, China lacks a postal/package delivery network suited for large-scale e-commerce. The national postal system, ChinaPost, has a reputation for slow service and express delivery companies are still in short supply and limited to the main urban centers (See Figure 4-2). Furthermore, Chinese businesses (as well as consumers) continue to express a lack of confidence in the overall security of doing business online, an issue that the central government has only recently begun to address. Nevertheless, as China responds to the traditional and legal challenges posed by the growth of e-commerce, it is expected that B2B will enjoy increased acceptance in the country.

**FIGURE 4-2: E-COMMERCE DELIVERY METHODS IN CHINA**



Source: CNNIC, *Semiannual Survey Report on the Development of China's Internet* (January 2003), <http://www.cnnic.net.cn/develst/repindex-e.shtml>

## **BUSINESS –TO- CONSUMER ELECTRONIC COMMERCE**

As previously noted, while recent surveys indicate that an increasing number of Chinese are using the Internet, only a small number of the country's consumers are actually purchasing goods and services online. In addition, the CNNIC has estimated that only 18 percent of Chinese "business" websites and 6 percent of all "enterprise" websites are providing B2C e-commerce services.<sup>12</sup> Nevertheless, while the B2C market may appear comparatively small in China, the sheer size of the potential B2C market in the country warrants the attention of online merchants.

Despite the relative size of the current B2C market in China, there are indications that an increasing number of Chinese, particularly those in the large cities of Beijing, Shanghai, and Guangzhou, are beginning to favor e-commerce over traditional methods of purchasing goods and services.<sup>13</sup> Chinese consumers are increasingly going online to purchase books and magazines, computer equipment, mobile phones, and to a lesser extent, medical and financial services.<sup>14</sup> In addition, the development of B2C Internet portals, such as Sohu.com and Sina.com, are making e-commerce more convenient and efficient than ever for consumers.

As is the case with B2B e-commerce, several factors have conspired to hamper current development of the B2C market in China. In particular, Chinese consumers have indicated

<sup>12</sup> CNNIC, *Survey Report on the Quantity of China's Internet Information* (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>

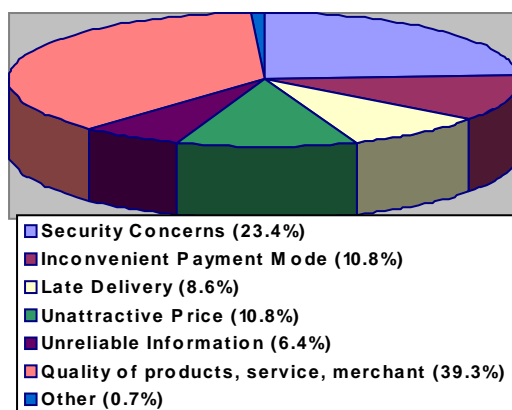
<sup>13</sup> *B2C Gaining Popularity in Urban China*, China Daily (online edition), May 30, 2001, <http://www1.chinadaily.com.cn>.

<sup>14</sup> CNNIC, *Semiannual Survey Report on the Development of China's Internet* (July 2002 and January 2003), <http://www.cnnic.net.cn/develst/repindex-e.shtml>



several obstacles to online purchase, including security concerns, inconvenience of payment, late delivery, and unreliability of the merchant (See Figure 4-3). However, an increasing number of Chinese consumers appear to recognize the benefits of e-commerce, including reduced cost, efficiency and the enjoyment and curiosity of shopping online.<sup>15</sup> As the use of the Internet continues to increase, and as businesses in China continue to respond to changing consumer habits, B2C e-commerce will likely become more prevalent in the country.

**FIGURE 4-3: PRIMARY OBSTACLES OF ONLINE PURCHASE (AS IDENTIFIED BY CHINESE INTERNET USERS)**



Source: CNNIC, *Semiannual Survey Report on the Development of China's Internet* (January 2003), <http://www.cnnic.net.cn/develst/2002-7e/index.shtml>

## FINANCIAL SERVICES

In recent years, China's banking and security brokerage communities have begun to realize the value of the Internet. Commercial banks and securities firms in China are now providing their customers with an increasing variety of online services, including electronic inter-bank transfers, online account inquiries, and Internet shopping options. However, while the application of e-commerce to the financial services sector holds great promise, online banking and brokerage services in China are currently focused almost exclusively on the B2B market.

In late 2001, China's central bank, the People's Bank of China, issued regulations governing online banking activities. These regulations are intended to provide certain assurances to banks that would like to provide Internet banking services, but are hesitant because of concerns related to the security of their customers' data.<sup>16</sup> The regulations require banks to install certain security and encryption technologies, and to inform customers of the potential trading risks. Banks that comply with the regulations receive a certificate from the central bank in Beijing.

<sup>15</sup> CNNIC, *Semiannual Survey Report on the Development of China's Internet* (January 2003), <http://www.cnnic.net.cn/develst/2002-7e/index.shtml>.

Note: The CNNIC's survey does not explain exactly why Chinese consumers are increasingly indicating that e-commerce is an "efficient" option. This sentiment may be based on the real or perceived benefits of e-commerce, namely that, in comparison to off-line commerce, it allows for more efficient mechanisms of choice, payment and delivery.

<sup>16</sup> UNCTAD, *E-commerce and Development Report 2001*, pg. 236, <http://www.unctad.org>

While the regulations provide a certain degree of assurance for banks and their relations with their business clients, a personal data protection law may be required before Internet banking in China is extended to personal banking.<sup>17</sup> The lack of Internet security for personal banking is one reason why online banking in China is limited to enterprises.<sup>18</sup> Additional obstacles inherent in the Chinese market also prevent consumers from utilizing online banking. These include the infrequent availability of e-payment solutions, the inability of banks to conduct credit analyses on their customers, and limited telephone and Internet links in some areas of the country.<sup>19</sup>

These factors appear to have conspired to limit opportunities in China's online securities sector as well. While an estimated \$5.13 billion in shares were traded online during the first two months of 2002 in China,<sup>20</sup> that figure accounts for only 6 percent of all shares traded at China's two stock exchanges.<sup>21</sup>

Nevertheless, all indications are that China will continue to experience growth in both its Internet banking and online brokerage sectors. As China seeks to overcome traditional barriers to doing business online, and as the central government further develops its legal framework for e-commerce, more Chinese businesses and consumers are increasingly likely to apply Internet solutions to their financial transactions.

Furthermore, pursuant to its WTO accession, China has agreed to significant liberalizations and reductions of market restrictions in a number of service sectors, including banking. As China continues its reforms in this regard, it will establish a more transparent and predictable regime for business dealings,<sup>22</sup> which should particularly benefit the application of the Internet to the financial services sector, and expand foreign opportunities in China's e-commerce market.

## ELECTRONIC LEARNING

While Chinese consumers, in general, have refrained from purchasing goods and services online, Chinese students are widely engaging in online education services, or "e-learning." Computer and television-hosted distance education networks are expanding rapidly to China's remote regions and at least 40 Chinese universities are now providing online education. In fact, it is estimated that 5 million college students in China will use online education services by 2005.<sup>23</sup>

There are two main reasons why e-learning has become so popular in China. First, the State Council and Ministry of Education have placed great emphasis on online education, particularly at the college and university level. In 2000, the Ministry of Education authorized 31 universities

---

<sup>17</sup> US&FCS China, *Commercial Banking Industry Sector Analysis* (September 6, 2001).

<sup>18</sup> *Id.*

<sup>19</sup> Interview with Bank of Communications officials (Shanghai, June 2002).

<sup>20</sup> *Online Trading Growth in China*, HK-iMail, April 9, 2002, as published on <http://www.nua.com/surveys/>

<sup>21</sup> *Online Trading Booms in China*, South China Morning Post, January 29, 2002, as posted on <http://www.nua.com/surveys/>

<sup>22</sup> *China's Entry Into the WTO: What It Means for U.S. Industry*, Export America magazine (online edition), January 2002, <http://www.trade.gov/exportamerica/FullArchive/Jan02.pdf>

<sup>23</sup> *Online Education Picking Up In China*, Chronicle of Higher Education, May 22, 2001, as posted on <http://www.nua.com/surveys/>

to provide online education and began to train teachers to produce Internet courses and online textbooks. Secondly, Chinese parents have always placed a premium on education and have had a great willingness to pay for online courses for their children and to purchase the required computer equipment.<sup>24</sup>

In addition to distance learning services, Chinese universities are incorporating Internet tools into their classrooms and have begun to focus on e-commerce studies within their curricula. For example, Xi'an Jiaotong University in Shaanxi province has enabled its students to complete assignments through e-mail, chat-groups, Internet classrooms, and a digital library. The school also offers courses in e-business and Internet law and has sponsored national e-commerce seminars that have drawn participants from across the country.<sup>25</sup>

While e-learning has gained in popularity in China, there are a number of factors currently inhibiting its further growth. Many Chinese schools, including colleges and universities, lack appropriate facilities for conducting online education and suffer from faculty that have not been trained to provide online instruction. In addition, few students in China have broadband access and the cost of accessing the Internet is simply too high for some students, particularly those in rural areas.<sup>26</sup> However, as the central government and provincial authorities continue to dedicate resources to online education and expand the country's Internet infrastructure, e-learning opportunities will likely expand for Chinese students.

#### LEGAL, REGULATORY AND POLICY FRAMEWORK FOR ELECTRONIC COMMERCE

In recent years, China's central government has instituted a nationwide "informatization" campaign aimed at developing the nation's IT infrastructure and encouraging consumers, businesses and the government itself to go online. As part of its overall strategy, Beijing has enacted a series of laws and regulations designed to address legal issues specific to e-commerce and to stimulate its growth in the country. However, while China has addressed some legal issues brought on by the growth of e-commerce issues, it currently lacks a national framework comprehensive enough to many aspects of e-commerce.

While the theme of "informatization" is ubiquitous in China, there is no clear delineation of responsibilities for e-commerce policy in the country. The State Council has recently created an Informatization Office that has been tasked with the overall responsibility of China's e-commerce and e-government policies. However, there are a number of additional agencies participating in that work, including the Ministry of Commerce, the State Development and Planning Committee (SDPC), the Ministry of Science and Technology (MOST), the Ministry of Information Industry (MII), the Ministry of Finance (MOF), and the Party's Propaganda Department.

In addition, provincial and local governments have initiated their own "informatization" and e-commerce programs. The regions encompassing Beijing, Shanghai, and Guangzhou have been

---

<sup>24</sup> UNCTAD, *E-commerce and Development Report 2001*, pg. 240, <http://www.unctad.org>

<sup>25</sup> Interview with staff of Xi'an Jiaotong University (Xian, Shaanxi Province, June 2002).

<sup>26</sup> Id.

particularly active in encouraging development in e-commerce and in enacting local policies/regulations to address key legal issues.<sup>27</sup>

Central and/or local government authorities have instituted (or are developing) legal, regulatory and policy initiatives in the following key areas:

### ***E-Government:***

In 1999, China introduced its “Government Online” program that was aimed at making central and local government information and services accessible via the Internet. Subsequent initiatives have been focused on encouraging schools to go online and offering businesses and consumers the ability to obtain licenses and permits from various authorities, as well as pay taxes, electronically.

Recent studies indicate that China’s efforts to institute e-government have been largely successful. In 2001, it was estimated that over 3,300 websites in China use the “.gov.cn” domain name.<sup>28</sup> In addition, local governments have made considerable progress in applying information technologies to their programs. For example, Shanghai has created “Portal Shanghai” a web platform that links government regulations and information from across the region. The city has also begun to issue “smart cards” to its citizens for use in public transportation and for social security purposes.<sup>29</sup>

Additionally, provincial governments have begun to sponsor e-government workshops. In June 2002, Sichuan province sponsored one such workshop in Chengdu. Several U.S. companies, including IBM, participated in the program.

### ***Digital Divide:***

Guangdong province, Beijing, and Shanghai account for over 30 percent of China’s total online user population, while Qinghai, Ningxia, and Tibet collectively account for less than 1 percent.<sup>30</sup> In addition, over 40 percent of all domain names in the country have been allocated to websites in China’s three largest cities.<sup>31</sup> As China moves forward with its “informatization” program and accelerates the growth of e-commerce, it must also find a way to bridge the digital divide that exists between the major urban centers and outlying provinces.

Central government programs have been limited in this regard, but China has recently instituted a “Go West” campaign, part of which encourages e-businesses to relocate to western provinces,

---

<sup>27</sup> In 2003, Guangdong province, one of China’s most important regional economies, became the first province to enact its own e-commerce law. The law grants legal recognition for electronic signatures and regulates e-commerce certification agencies and Internet service providers.

<sup>28</sup> CNNIC, *Survey Report on the Quantity of China’s Internet Information* (2002), <http://www.cnnic.net.cn/e-sl.shtml>

<sup>29</sup> Interview with Shanghai Informatization Office officials (Shanghai, June 2002).

<sup>30</sup> *China Admits to Digital Divide*, China Daily, May 20, 2002, as posted on <http://www.nua.com/surveys/>

<sup>31</sup> CNNIC, *Survey Report on the Quantity of China’s Internet Information* (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>

including Shaanxi and Sichuan. Thus, as government and enterprises build further awareness of the Internet in rural areas, the digital divide in the country will likely diminish.

### ***Certification Programs for Enterprises Engaged in E-Commerce:***

In 1999, China introduced its “Enterprises Go Online” program to encourage Chinese businesses to utilize the Internet and to engage in e-commerce. Thus far, the program has proven a modest success. As previously mentioned, 77 percent of Chinese websites are now operated by businesses.<sup>32</sup>

In order to help more enterprises to go online, MII has introduced a pilot certification program for businesses that wish to engage in e-commerce. While the overall objectives and requirements of the program remain unclear, MII has indicated that the program is intended to improve efficiency, competition and capability in China’s e-commerce sector by offering participants training in e-business techniques and tools.<sup>33</sup> The program has recently been extended to several outlying provinces, including Shaanxi.<sup>34</sup>

### ***Electronic Payments:***

As mentioned, one of the greatest obstacles to the more rapid growth of e-commerce in China is the fact that online payment mechanisms are not widely developed or used in the country. For instance, while Visa and MasterCard have distributed credit cards in conjunction with several Chinese banks, including the Bank of Communications, credit cards have not gained widespread acceptance. In addition, while bank-issued debit cards are increasingly favored by Chinese, they still constitute a low percentage of all modes of payment used in the country. For most businesses and consumers in China, “cash and carry” is still the preferred means of purchasing goods and services.

One reason why e-payment instruments are not widely used in China is that the central government has insisted on conducting numerous studies on e-payment mechanisms before it decides to implement a national financial network that would encourage the use of efficient payment mechanisms or instruments, including credit cards. In addition, very few banks currently have the ability to conduct credit analyses. Finally, the government has yet to completely address information security, an issue that concerns Chinese consumers and businesses and contributes to a diminished demand for online payment solutions.

---

<sup>32</sup> CNNIC, *Survey Report on the Quantity of China’s Internet Information* (July 2002), <http://www.cnnic.net.cn/e-sl.shtml>

<sup>33</sup> Interview with officials at MII (Beijing, June 2002).

<sup>34</sup> Interview with officials at Shaanxi Economic & Trade Commission (Xi’an, Shaanxi Province, June 2002).

***Digital Signatures:***

In June 2002, the predecessor to the Ministry of Commerce, the Ministry of Foreign Trade and Economic Cooperation (MOFTEC), announced that it intended to appoint experts to draft a comprehensive Electronic Signature Regulation for China. The law would provide legal effect for digital signatures, electronic tools that can be used as evidence of a document's transmission as well as verification of the authenticity of the document's sender.

The law would also address a major shortcoming of China's legal treatment of e-commerce. Chinese law currently does not recognize the validity of digital signatures and similar authentication technology. While many details of the proposed legislation have not been released, a comprehensive, balanced and "technology-neutral" digital signature law might further assist the development of China's Internet economy, particularly in the country's financial services sector.

***Information Security:***

In September 2000, the central government enacted an Internet security law aimed at guaranteeing information security in the telecom and e-commerce sectors. The law sets forth basic principles for enterprises and the government concerning Internet and telecom security. However, the law stops short of imposing civil and criminal penalties for most cyber-security violations. Chinese officials have indicated that enforcement of the law has been inconsistent and that it is often difficult for authorities to find evidence against cyber-criminals.<sup>35</sup> The problem is compounded by the fact that the law has not yet been implemented in all of the country.

***Data Privacy Protection:***

China has yet to enact legislation that would provide the country's Internet users with any measurable degree of personal data protection. In December 2002, China released details of its first draft civil code, which emphasizes the protection of privacy rights.<sup>36</sup> The draft code defines privacy "as private information, activities and space" and bans people "from infringing on other's privacy by watching them, tapping their phones or disclosing their personal information."<sup>37</sup> Nevertheless, it remains unclear how this code will be applied to personal data exchanged online; whether China is willing to enforce the code against organizations that violate an individual's right to privacy; and if the code is intended to apply to data collected by Chinese authorities as well as private organizations.

In addition to its work on the draft civil code, China has implemented information security and data protection training for enterprises via the government's pilot e-commerce certification program. However, it is not yet clear whether this program can offer any real assurances to Chinese Internet users that have hesitated from going online due to Internet security or personal data protection concerns.

---

<sup>35</sup> Interview with SCITO officials (Beijing, June 2002).

<sup>36</sup> *China's First Draft Civil Code Gives Priority to Protection*, China Daily, as posted on Beijing China Daily (Internet Version) in English, December 24, 2002.

<sup>37</sup> *Id.*



***Content Restrictions:***

In recent years, Chinese authorities have responded to the increasing popularity of the Internet by enacting a series of measures ostensibly to bolster Internet security in the country to prevent cyber-crime. However, many of these initiatives have also been chiefly designed to restrict the ability of users' to view online content that the government deems "harmful."

In July 2002, MII published the Measures for the Administration of Internet Access Facilities, the central government's latest attempt to restrict the activities of the many licensed and unlicensed Internet cafes in the country. In particular, the new law requires the operators of Internet service facilities to record information on Internet access and to provide those records to authorities upon request. Authorities have also begun a more concerted effort to shut down Internet cafes that state security believes are allowing access to "subversive" websites, including those affiliated with the banned Falun Gong religious movement, pornography, and democracy movements inside and outside the country.<sup>38</sup>

***Intellectual Property Rights Protection:***

Before the U.S. and China signed a series of bilateral intellectual property rights (IPR) agreements in the 1990s, China was widely considered to be one of the world's largest exporters of pirated goods. The problem was so rampant in China that many foreign companies were unable (or unwilling) to enter China's e-commerce market for fear that their products, including digitally delivered software, would be copied and illegally produced.

In recent years, the situation has improved somewhat. In 2001, China amended its Copyright Law and extended IPR protections for works published and distributed via the Internet, thereby providing some measure of assurance for rights-holders.

Additionally, many consider China's accession to the WTO as another positive step towards addressing IPR violations in the country. Full implementation of the TRIPS agreement, required upon accession, will likely enhance IPR protection for high-tech goods, including digitally delivered products. Nevertheless, despite these positive steps towards meaningful IPR protection in China, it is believed that the real proof of China's progress in this area will lie in the central government's willingness to prosecute those who violate the laws through enhanced enforcement activities.

***Taxation of E-Commerce:***

In July 2000, the central government appointed a task force to look into the possibility of imposing taxes on electronic transactions in an effort to boost the government's finances. At the time, China's chief tax official had indicated that tax exemptions for e-commerce were draining potential revenue from the country.<sup>39</sup> However, despite that announcement, China has refrained

---

<sup>38</sup> Jonah Greenberg, *Web Content Rules in China Threaten New Penalties*, Reuters (online edition), July 15, 2002, <http://www.reuters.com>

<sup>39</sup> *Official Says China Will Tax E-Commerce*, Associated Press, July 24, 2000, as posted on the New York Times website, <http://www.nytimes.com/library/tech/00/07/biztech/articles/24china-tax.html>



from imposing duties on e-commerce. China will likely continue this policy, at least in the short term, while its “informatization” efforts proceed and while it seeks to implement WTO-compatible laws and trade practices.<sup>40</sup>

## BILATERAL AND MULTILATERAL COOPERATION

In recent years, China has become more involved in bilateral and multilateral policy initiatives concerning electronic commerce. This increased willingness to cooperate globally on e-commerce issues is somewhat reflective of its overall strategy of increased openness and transparency concerning its trade laws and economic policies. This is particularly the case as China implements its WTO accession commitments and seeks to further promote foreign investment.

To date, China’s involvement in multilateral e-commerce discussions has been led by the Ministry of Commerce (formerly MOFTEC). In particular, the Ministry of Commerce has represented China’s interests on e-commerce issues in the Asia Pacific Economic Cooperation (APEC) E-Commerce Steering Group (ECSG). In 2001-2002, China served as co-chair of the ECSG with Canada.

In recent years, China has shepherded two major initiatives in the ECSG:

- In August 2001 in Dalian, China, the Chinese delegation submitted a proposal to form the E-Commerce Business Alliance (ECBA), which would provide APEC with a business community forum exclusively devoted to the exchange of views on issues related to e-commerce. ECBA was approved by the ECSG in August 2002 in Acapulco, Mexico, and the first official meeting is scheduled for April 22-24, 2003 in Yantai, China.
- The Chinese also proposed the Action Plan on Economic and Technical Cooperation in the Field of E-Commerce (ECOTECH) in August 2001. A modified version of this proposal, emphasizing future work on international harmonization of e-commerce statistics and online payments issues was accepted by the ECSG at the August 2002 meeting.

Additional ECSG work items may prove useful areas for cooperation between China and other nations. The ECSG Privacy Forum, held in February 2002, inspired a work plan on data privacy protection, including a survey of APEC laws and policies related to online privacy. The 2002 forum was followed by an APEC privacy workshop in Thailand in February 2003. Since APEC’s work on data privacy protection is a large undertaking, China’s involvement in the project would prove instrumental.<sup>41</sup>

---

<sup>40</sup> The May 1998 WTO *Declaration on Electronic Commerce* established a moratorium on customs duties on electronic transmissions and a work program to address e-commerce issues in the WTO.

<sup>41</sup> More information on the APEC ECSG’s data privacy activities can be located at <http://www.export.gov/apececommerce/privacy.html>.

In addition, in recent years, the U.S. Department of Commerce has participated with China in E-Commerce summits in 2000 and 2001. These were sponsored by MII and the China Electronic Commerce Association and provided valuable opportunities to further U.S.-China dialogue on a number of key e-commerce topics, including taxation, Internet security and IPR.

Finally, in March 2002, the U.S. Department of Commerce and China's State Council Informatization Office sponsored a joint roundtable on e-commerce in Washington, D.C., which featured U.S. and Chinese industry and government representatives. Issues discussed included telecom infrastructure, network security, verification, and intellectual property rights protection. Further U.S.-China roundtables on e-commerce may occur.

---

## CHAPTER 5: MARKET OPPORTUNITIES AND MARKET ENTRY STRATEGIES

---

U.S. exporters may find substantial market opportunities in China, but they will face tremendous challenges as well. While U.S. information and communications technology (ICT) products are generally well regarded in China, U.S. firms must compete with the best that the rest of the world has to offer. European, Japanese, Korean, Taiwanese, and Canadian companies are all vying for a piece of the China market, along with local Chinese manufacturers. Local firms benefit from a variety of Chinese government policies that are designed to foster the development of an indigenous ICT industry. As previously noted, China's accession to the WTO has helped to reduce or eliminate many of the market access barriers faced by U.S. exporters to China, but significant hurdles still remain.

It is easy to look at China's population of 1.3 billion people and assume that there will be a commensurate demand for ICT products and services. But approximately 800 million people in China are farmers and peasants, unable to afford many of these new technologies. China is still a developing country, and much of the country's wealth is concentrated in the coastal provinces.

### *Opportunities in Telecommunications*

China's telecommunications equipment market is highly competitive, but opportunities do exist for new players. The country's "Go West" Initiative places a premium on bringing telecommunications service to the under-served western provinces. There is also a strong demand for cost-effective solutions for rural applications.

The recent split of China Telecom into two enterprises, China Telecom and China Netcom, should create new opportunities for vendors of "last-mile" solutions. Both firms were granted a share of the nationwide fiber-optic backbone network, but China Telecom retained the local loop infrastructure in the southern part of China, while China Netcom was awarded the local loop infrastructure in the north. Each company is now looking for ways to connect to customers in their competitor's territory. There are a variety of wireless applications, such as new 802.16 technologies, that would appear to meet this need.

China Telecom and China Netcom are also expected to aggressively market mobile services as soon as they are granted licenses by MII. The exact timing for the granting of such licenses is the subject of much speculation and conflicting reports from MII officials. It appears that MII will issue four 3G licenses in late 2003 or 2004 and that these licenses will go to the two existing mobile carriers, China Mobile and China Unicom, and to China Telecom and China Netcom. In the meantime, China Mobile and China Unicom have been aggressively deploying their "xiaolingtong" wireless networks, which offer limited mobility within a specific municipal area and are considered extensions of fixed line service.

The build-out of 3G networks will offer opportunities not only for equipment vendors, but also for companies offering a wide range of associated software applications, including roaming, billing, and user applications software.

China's accession to the WTO has opened new opportunities for foreign suppliers to invest in China's telecommunications services market, which had previously been closed to foreign participation. However, China divided its telecom services market into four sectors and agreed to open each sector in a series of steps that will permit foreign investment levels and service areas to increase over time. See "Chapter 2: Telecommunications" for further details.

As of January 2003, foreign companies may hold up to a 49 percent share in a joint venture offering value-added or paging services and/or up to a 35 percent share of a joint venture offering mobile services in any or all of 17 designated cities in China. Foreign investment in basic services will not be permitted until 2005. Because foreign investment limits are capped at 50 percent for value-added and paging services and 49 percent for mobile and basic services, there has been limited foreign investor interest in the China market thus far. Value-added services, which offer the highest investment limit and the fastest market-opening schedule, have attracted the most interest from foreign firms to date.

### ***Opportunities in Information Technology***

Four key factors are opening significant opportunities for U.S. IT suppliers to take advantage of China's vast consumer market. These are: (1) the government's informatization drive as stated in its Tenth Five-Year Plan to spread the use of information technologies among China's traditional industries; (2) the "Go West" campaign to narrow the digital gap between Eastern and Western China; (3) China's accession to the WTO; and (4) the focus of the 2008 Beijing Olympic Games' organizing committee on high-tech applications.

#### ***Informatization to promote Industrialization***

The government recognizes IT as a driver for economic growth and has placed tremendous emphasis on encouraging communities, the government, and traditional industries to use more information technologies. This priority is clearly stated in the Chinese Tenth Five-Year Plan (2001-2005).

According to IDC, China is expected to show the greatest growth in e-government spending among several Asian economies, including Korea, Hong Kong, Singapore, and Australia. China's e-government spending is growing nearly 40 percent annually between 2001 and 2003. This rapid increase in spending provides U.S. IT hardware and software suppliers with the opportunity to introduce solutions that will help the national, provincial, and municipal governments provide online services to their citizens. These solutions include networking hardware and software, Chinese language database software, Chinese language content management tools, portal software, and network security solutions.

WTO membership supports informatization drive

China's membership in the WTO offers new business prospects to U.S. IT firms. Traditional industries, such as manufacturing and banking, will need to upgrade their systems to become competitive internationally as China opens its market by joining the WTO. For example, a recent study by the consulting/research firm, Celent Communications, determined that China's banking industry invested nearly \$5 billion in information technologies in 2001, and projected that ICT spending would rise each year to nearly \$11 billion in 2005. Other industries, especially manufacturing, will require solutions, such as enterprise resource planning (ERP), customer relationship management (CRM), and supply chain management (SCM), to become more efficient in delivering products to their customers and receiving inputs from their suppliers. Not only will U.S. IT companies benefit from tariff reductions and equal treatment with domestic producers, but Chinese companies across all industries will also now have access to the 142 other WTO members' markets. This means that many of these companies will need to evaluate trends in their respective industries and better understand how their rivals are leveraging new technologies to remain competitive and succeed both domestically and internationally.

U.S. IT services companies that have significant international experience and specialize in technology solutions for vertical industries can provide these companies valuable guidance. Gartner Dataquest predicts that China will become the world's second-fastest growing market for IT services in 2003. China's IT services market is expected to reach nearly \$5 billion this year, representing an increase of 19 percent from 2002. By 2006, IT services revenues could reach nearly \$9 billion. In addition to targeting China's traditional industries, IT consulting companies and systems integrators can also play a crucial role in assisting state-owned enterprises increase their competitiveness by selecting the right combination of equipment and software solutions. The privatization and reform of state-owned enterprises is another goal stated by the government in the Tenth Five-Year Plan.

"Go West" Initiative to narrow the gap between Eastern and Western China

The Chinese government has targeted narrowing the income and digital gap between the wealthier Eastern cities and mostly agrarian Western provinces through its "Go West" initiative. The Ministry of Science and Technology will invest \$24 million to help close this gap. This funding will be devoted to a variety of programs in which U.S. IT suppliers could participate. This includes educating communities, local governments, and businesses about the various uses of information technologies and training citizens on how to use computers and the Internet. U.S. IT solutions providers with training programs on the use of their technologies can leverage these types of initiatives and introduce their products and services to Western China. In addition, because of the large rural economy in the West, Chinese language software targeted for the agricultural sector and software that would help farmers more efficiently distribute their products throughout China could improve local economies.

China has more than 54 million Internet users and nearly 21 million computers connected to the Internet. This brings opportunities for Internet Content Providers to develop Chinese language content to increase the use of the Internet among China's enormous population. Although China does have certain content restrictions (see "Chapter 3: Information Technology"), many opportunities still remain for Chinese language content developed for educational purposes in schools and hospitals. As more citizens gain access to computers and the Internet in the West, they will be able to benefit from the same content taught in educational institutes and consultations in hospitals in Eastern China and throughout the world.

### ***2008 Beijing Olympic Games***

China's successful bid for the 2008 Beijing Olympics will offer opportunities for U.S. IT equipment and software companies to help provide services for the Games. Part of the Beijing Informatization Office's "Digital Beijing" initiative is the proposal to have a Digital Olympics. The Digital Olympic project includes three main components:

- (1) areas directly serving the Olympic Games - The Beijing Organizing Committee for the Olympic Games (BOCOG) and the official Olympic Committee will directly manage these types of projects. For example, this group will handle the systems integration contracts for the entire Games;
- (2) applications, including all information services for use by visitors and athletes; and
- (3) the supporting platform for Beijing's infrastructure to promote informatization. The Beijing Informatization Office manages the second and third components of the Digital Olympics project. According to this office, their greatest challenge will be identifying key applications that athletes and visitors will use, rather than building the information infrastructure to support these applications.

Table 5-1 highlights some of the IT projects envisioned by the municipal government of Beijing. These projects provide a wide variety of opportunities for U.S. IT companies that can provide smart card technologies, broadband applications, database applications, e-commerce platforms, network security solutions, simulation software, games software relating to Olympic Game sports, and voice recognition software, among many other products and services. More information about the Beijing Olympics can be found on the official website at <http://www.Beijing-2008.org>.

**TABLE 5-1: THE 16 AREAS OF WORK SPECIFIED BY BEIJING INFORMATIZATION OFFICE  
FOR THE 2008 DIGITAL OLYMPICS**

1. Plan and build a symbolic building or group of office buildings (for instance, "Olympic 2008 Plaza" or Olympic 2008 Control Center, equipped with broadband network, command system, and dispatching system);
2. Plan and build Olympic-related basic telecom pipelines to ensure deployment of all telecom networks for the Olympic Games;
3. Tighten control over radio communications resources to ensure the frequency allocation for, and normal operation of, all radio communication equipment;
4. Build up an advanced telecom infrastructure and provide world class telecom services;
5. Transform the analog television system to digital television system so as to be able to provide digital television programs and other related value-added services;

6. Develop information systems required by the Olympic Games;
7. Build up and improve the supporting environment for e-commerce to meet the business demands during the Olympic Games;
8. Make sure that all the stadiums and facilities meet the International Olympic Committee's requirements and improve the intelligence level of all related facilities;
9. Build up a project management information system to improve project management in relation to the Olympic Games;
10. Build a multi-language intelligent network so that there will be no "language barriers" during the Olympic Games;
11. Promote the use of IC cards and credit cards during the Olympic Games; issue "2008 Beijing Olympic Games Cards";
12. Highlight "Digital Olympics" at the opening and closing ceremonies;
13. Build up an information security system to ensure the security of all Olympic Games-related networks and information, and provide information and technological support to the overall security effort during the Olympic Games;
14. Speed up the construction of the urban information system so as to create a better urban information and telecom infrastructure, which will support the Olympic Games;
15. Develop key information technologies related to the Olympic Games (for instance, simulation training system, games, etc.), and eventually lead to the emergence of a sports information industry;
16. Build up an integrated, effective, multimedia, and visualized decision-making and commanding information system to ensure the success of the Olympic Games 2008.

Source: Beijing Informatization Office (translation of text provided by the U.S. Embassy in Beijing)

### *Opportunities in E-commerce*

As previously mentioned, several institutional and societal factors (such as low Internet penetration in rural areas, lack of credit card usage and inefficient delivery systems) have combined to restrain more rapid growth of e-commerce in China. However, while the B2B and B2C e-commerce markets in China remain relatively small, U.S. e-commerce companies should note the sheer size and overall potential offered by the Chinese market.

China's B2B market will likely continue to offer U.S. companies the greatest opportunity for export sales. An increasing number of Chinese firms are eager to implement Internet and e-commerce strategies and products, particularly e-procurement and e-sales technologies. U.S. web developers and web-hosting services, as well as e-commerce consultants, are also in high demand. E-commerce products and services localized for the Chinese market should enjoy the most success.

In general, the Chinese B2C e-commerce market will offer less opportunity than B2B. Until e-payment mechanisms, including credit cards, enjoy more usage in the country, the potential as compared with the B2B market will remain small. In addition, content restrictions (and site blocking) imposed by the Chinese government may continue to hamper the ability of U.S. companies to market certain goods, including books, periodicals, and music.



**MARKET STRATEGIES**

U.S. firms interested in pursuing opportunities in China's ICT markets should recognize the differences in business and cultural styles between the United States and China and develop an appropriate market entry strategy. An excellent place to start is with the U.S. and Foreign Commercial Service's publication, the *China Country Commercial Guide* (<http://www.usatrade.gov/website/ForOffices.nsf/WebCCG/China>).

***Due diligence is critical***

As the following excerpt from the *China Country Commercial Guide* illustrates, it is extremely important that American companies carefully research their prospective opportunities in China before entering the market. "American companies continue to have mixed experiences in China. Some have been extremely profitable, while others have struggled. To be a success in China, American companies must thoroughly investigate the market, pre-qualify potential business partners, take steps to assure that they will be paid, and craft contracts which minimize misunderstandings between the parties.

"The problems of doing business in China can be grouped in four large categories:

1. China often lacks predictability in its business environment. Predictability can be provided by a transparent and consistent body of laws and regulations. China lacks both. Its current legal and regulatory system can be opaque, inconsistent, and often arbitrary.
2. China has a government that tends to be mercantilist and protectionist. China has made significant progress toward a market-oriented economy, but parts of its bureaucracy still tend to protect local firms and state-owned firms from imports, while encouraging exports.
3. China has the remnants of a planned economy. In many sectors of the Chinese business community, the understanding of free enterprise and competition is incomplete. The Chinese economy is often prone to over-investment and over-production, for reasons not related to supply and demand.
4. Foreign businesses have been over-enthusiastic about China. Encouraged by a government eager for foreign capital and technology, and entranced by the prospect of 1.3 billion consumers, thousands of foreign firms have charged into the Chinese market. These companies often do not fully investigate the market situation, don't perform the necessary risk assessment, and fail to get counsel. Without the necessary preparation, these companies often stumble into bad business deals, resulting in trade complaints and lost investments."<sup>1</sup>

***Local Representation is Key***

IT industry experts interviewed in China stress that for smaller U.S. firms, some form of local representation is essential. Business in the country is very relationship-oriented and "face-to-

---

<sup>1</sup> *China Country Commercial Guide FY2002*, Chapter 1: Executive Summary, U.S. and Foreign Commercial Service, Beijing, China.

face” interactions are much more important in China than in the United States. A local partner will give a U.S. firm a local “face” and will use personal ties to locate and approach new customers more effectively. Local representation will give small U.S. firms more credibility, help U.S. SMEs overcome a lack of brand recognition, and make potential customers more comfortable as well. Working through a local firm also offers easier access to knowledge of the local market, such as sales cycles, economic issues, regulatory issues, and cultural factors and tastes. According to industry observers, there reportedly is wariness in China of foreign firms that want to sell a product or service without a local presence. A local presence shows customers that they will not need to call the United States if they have problems or need technical or customer support. However, companies planning to establish help desks in China should first ascertain that there is sufficient local talent available to staff the operation and should take an active role in properly training the staff.

### ***What Form of Local Representation?***

Firms with the necessary financial resources and understanding of the Chinese market may wish to set up a local office and hire local employees to do marketing, training, and provide ongoing support for the company’s technologies. However, for most small companies looking to enter the China market, the most popular option is to find a local partner. One option is to partner with a large, established IT supplier, systems integrator, or consulting firm that is already active in China. Another is to partner with a like-minded Chinese IT SME with complementary skills and technologies. Other options include agents, distributors, or other representatives who can represent the U.S. firm and support its customers. Local industry experts stress that prior to choosing a local presence strategy, such as a partner or representative, it is important for the U.S. firm to visit the target market and try to understand “firsthand” the local market and business culture.

### ***Partnering with Large, Established IT Firms, Systems Integrators, or Consultants***

Small companies in the international marketplace often lack the brand recognition and delivery channels enjoyed by larger companies. Working with more established, larger foreign IT and telecommunications firms, systems integrators, or consultants already doing business in China can help a U.S. SME with its initial expansion into the country. The larger companies are often able to integrate the smaller firm’s technologies into their product or service suites, allowing the SME to reach customers they might not otherwise be able to access. Many small firms enter the Chinese market because one of their U.S. customers becomes active in China and asks the small firm to follow it to China. Many Chinese IT suppliers, systems integrators, and consultants are constantly looking for new leading-edge technologies from small U.S. firms. See below.

### ***Partnering with Like-Minded SMEs***

Chinese SMEs in the IT sector are eager for U.S. partners, and U.S. companies may want to consider collaborating with small local firms with complementary products or services. Many IT experts interviewed in China recommend strategic alliances or partnerships as an effective way for U.S. IT SMEs to penetrate the China market.

Depending on the culture and organizational goals of each company, an alliance could be very formal, with well-established responsibilities, or less formal, depending on each company's corporate culture and goals. Chinese IT firms seek partnerships with U.S. firms for various reasons, including access to: 1) technologies necessary to execute ideas; 2) trained and knowledgeable people; 3) training; and 4) perhaps most importantly, additional financial resources.

Many Chinese SMEs have ideas, but lack the hardware, software, and technical knowledge to create the intended solution. In particular, small local systems integrators and consultants desire to partner with similar U.S. firms to provide services such as systems integration, and Internet and e-commerce strategy consulting. Chinese start-ups know that being first-to-market with the latest technologies is critical, and that the IT industry's rapid pace of technological development and short product life cycles require partnering to obtain these technologies and expertise, instead of trying to develop them "in-house." Further, because U.S. firms have the reputation of being at the forefront of these technologies, partnering with U.S. IT SMEs provides Chinese IT firms with technological legitimacy.

U.S. partners are desirable for their human resources as well. Chinese firms in the industry report that finding talented management and quality staff is a factor limiting the growth of local firms. Therefore, many Chinese companies are seeking quality training in the technologies necessary for the partnership to succeed. In many cases, Chinese companies may be more favorably inclined to purchase equipment and services from foreign suppliers if training is included.

### ***Agents and Distributors***

Agents and distributors, another possible approach to local representation, can offer cost-effective entry into new markets for U.S. IT firms. Like other partners, they can assist the U.S. company with their knowledge of the intricacies of the target market, such as regulations and taxes.

Agents and distributors differ slightly. Agents generally take orders for and sell a product or service, but do not take possession of a product and are not directly responsible for payment. In most countries, an agent has more than one client and, therefore, may sell products or services from companies that compete with each other. A distributor is typically responsible for the payment of a product that is exported. Distributors sometimes combine their own product with that of the U.S. exporter, which makes the distributor more committed to selling the exporter's product.

Lists of agents and distributors can usually be found in the appropriate Industry Sector Analysis (ISA) reports published regularly by U.S. Department of Commerce's foreign trade specialists in China, although these lists may not always be current due to the rapid rate of change in the industry. Agents or distributors may also be located by searching advertisements in specialized magazines in the target country, similar to industry journals in the United States. The U.S.

Department of Commerce's U.S. and Foreign Commercial Service can assist U.S. firms in locating agents and distributors in China through its International Partner Search program.<sup>2</sup> According to a report issued by the U.S. and Foreign Commercial Service office in Guangzhou, China, in September 2002, the following four companies were the top ICT distributors in China in 2001:<sup>3</sup>

**Digital China (<http://www.digitalchina.com/>)**

Spun off from Legend Computer in 2000, Digital China went public on the Hong Kong Stock Exchange on June 1, 2001 (stock quote: 861HK). The company still maintains its operational headquarters in Beijing with distribution networks throughout China. According to their public financial statement, Digital China's annual sales in 2001 reached \$1.35 billion, accounting for an estimated 28 percent of the market share in ICT distribution. The company currently distributes AGFA, Alcatel, Cannon, Cisco, Compaq, EMC, Epson, HP, IBM, Kodak, Motorola, Netscreen, Nokia, Oracle, Sun, Toshiba.

**Ingram Micro China (<http://www.im-china.com>)**

Ingram Micro China, headquartered in Shanghai, is a wholly-owned subsidiary of Ingram Micro, the world's largest ICT distributor. Ingram Micro China's origin can be traced back to a local Chinese company named Even-Hi Computer. In 1993, Even-Hi became one of the two Intel distributors (the other is Legend, now Digital China) in China. With sales of Intel CPUs skyrocketing in China, Even-Hi grew rapidly and inevitably had to look for outside financing to support its expansion. They soon found Singapore Headquartered Electronics Resources (ER), then one of the major distributors in South East Asia. By 1997, ER had acquired all of Even-Hi's shares and established ER China. In the same year Ingram Micro started discussion with ER Singapore to acquire the Singaporean firm. In January 1999, Ingram Micro completed its acquisition of ER, including ER China. Ingram Micro, through acquisition, suddenly became the second largest distributor in the China market, with 13 warehouses throughout the country and annual sales reaching an estimated \$900 million. Mr. Fan Zhang, General Manager since the Even-Hi days, is still IM China's chief executive today.

**PCI (<http://www.pci.com.cn/>)**

PCI was established in the southern city of Guangzhou in 1992. The company began as a small retailer and system integrator in a wholesale market located in this city. Mr. Wei Liu, founder and CEO, led the company to become one of the top distributors in the market. The company is ranked by IDC as the third largest ICT distributor in China with a 14 percent market share. In 2001, the company's annual sales reached \$430 million with a network of 8 offices and 11 warehouses across China. In December 2001, ECS Holding Ltd., a Singapore Stock Exchange-listed company, acquired 51 percent ownership in PCI. Solectron, the world's largest contracted equipment manufacturer, with 19.3 percent ownership of ECS shares, became one the major shareholders of PCI. Solectron brings to PCI its long-standing business relationships with all the top ICT vendors and its renowned supply-chain

---

<sup>2</sup> Information about the International Partner Search program can be found in Chapter 6

<sup>3</sup> Industry Sector Analysis: *IT Product Distribution*; Kent Guo, U.S. and Foreign Commercial Service, Guangzhou, China, September 14, 2002.

management expertise. The company currently distributes the following brands: Adobe, APC, Apple, AutoCad, Autodesk, BEA, Cisco, Greatwall, HP, IBM, Microsoft, Oracle, Sun, and Veritas.

**Dawncom (<http://www.dawncom.com.cn>)**

In 1991, Mr. Li Wu founded the then-trading company, Dawncom Company, in the Northeastern city of Shenyang with an initial investment of about \$60,000. Dawncom today is a Shenzhen Stock Exchange listed company (quote 0863) with annual sales of about \$100 million in 2001. Dawncom's line includes IBM, Microsoft, Compaq, HP, Huawei, Panduit, Nortel Networks, and Oracle.

Regardless of how agents or distributors are found, it is important that they be qualified to ensure they understand the U.S. firm's product and can provide after-sales service, if necessary. For SMEs with highly sophisticated technologies, agents and distributors may not be the best market entry option. After-sales service, which sometimes includes working closely with the customer on technology issues, is critical in the IT industry and is a function that may be best handled by the exporting firm or its local partner.

***Important Issues to Consider When Entering China***

***Develop Relationships*** – Personal relationships in business are critical. The Chinese feel more comfortable dealing with “old friends,” so it is important for exporters, importers, and investors to establish and maintain close relationships with their Chinese counterparts and relevant government agencies. It is equally important that American exporters encourage strong personal relationships between their Chinese agents or distributors and buyers and end-users. A web of strong personal relationships will help ensure smoother development of business in China.<sup>4</sup>

***Be Patient*** – It generally takes more time to conduct business transactions in China than in the United States. The Chinese tend to take more time than Americans when making major decisions and such decisions usually must be approved by a consensus of several people, rather than a single decision-maker.

***Price Appropriately*** – China's ICT markets are extremely price competitive, and Chinese buyers tend to be very price conscious. European and Japanese suppliers are often able to offer concessionary financing packages on larger infrastructure projects that U.S. firms may find difficult to match.

***Protect your Intellectual Property Rights*** – IPR violations are a very serious concern in China, so U.S. firms should take precautions to utilize appropriate contractual and legal measures to protect their intellectual property.

---

<sup>4</sup> U.S. Department of Commerce, *China Country Commercial Guide 2002*.

***Localization is Essential*** - An important factor for success in China is the localization of products and services. The translation of product literature and labeling is only one element of localization. Electrical products must be compatible with local electrical current supplies. In addition, Chinese software utilizes a 16-bit character set rather than the 8-bit commonly used in the United States.

### ***Get to Know your Local Trade Associations and Government Offices***

There are a number of trade associations that may be useful to U.S. ICT firms doing business in China, including the United States Information Technology Office (USITO), the American Chamber of Commerce (AmCham), and the U.S.-China Business Council (USCBC).

There are also a number of Chinese government offices that oversee the activities of foreign firms in China so it is important for U.S. firms to develop a good working relationship with them.

Overviews of the trade associations and Chinese government agencies are included in Chapter 1. The names and addresses of contacts in these associations and government agencies can be found in the appendices of this report.

### ***Look into Trade Shows and Trade Missions***

Trade shows provide an good opportunity to learn more about China's ICT market sectors. There are several national telecommunications and information technology exhibitions each year, which provide attendees a good overview of the various products and technologies currently available in the China market. Trade shows that focus on specific vertical industries are an excellent avenue for SMEs that offer niche-market or vertical industry-specific products or services. A partial list of key trade shows is also available in the appendices of this report,

The U.S. Department of Commerce organizes each year a variety of trade missions and matchmaker events in China. U.S. Department of Commerce personnel participate in many foreign trade fairs with, or on behalf of, U.S. firms, offering companies market exposure at prices far below regular trade fair participation costs. International trade specialists in the Department manage trade missions and matchmakers. These trade events can be an excellent avenue for SMEs to gain knowledge of a foreign market, including making valuable business contacts in a very short period of time. For a partial list of telecommunications, IT, and e-commerce related trade fairs in China and elsewhere that are supported by the U.S. Department of Commerce's U.S. and Foreign Commercial Service, visit the US&FCS Web site (<http://www.usatrade.gov>). The U.S. Department of Commerce's Information Technology Industries offices' Web site (<http://www.export.gov/infotech/>) lists IT- and telecom-related trade events.



---

## CHAPTER 6: THE ROLE OF THE U.S. DEPARTMENT OF COMMERCE

---

### INTERNATIONAL TRADE ADMINISTRATION

The mission of the U.S. Department of Commerce's International Trade Administration (ITA) is "to create economic opportunity for U.S. workers and firms by promoting international trade, opening foreign markets, ensuring compliance with trade laws and agreements, and supporting U.S. commercial interests at home and abroad." The Trade Development (TD) and the U.S. Commercial Service (US&FCS) divisions of ITA are responsible for export promotion. For more information on ITA, visit <http://www.trade.gov>. For more information on how the U.S. Government assists U.S. businesses export, visit <http://www.export.gov>.

#### *Export.gov Web site*

Export.gov is a multi-agency trade portal that brings together U.S. Government export-related information under one easy-to-use web site, organized according to the intended needs of exporters, especially small businesses. Whether a company is exploring the possibility of exporting, searching for trade partners, seeking information on new markets, or dealing with trade problems, this web site can help. Additionally, the site has easy links to information on advocacy, trade events, trade statistics, tariffs and taxes, market research, export documentation, financing export transactions, and much more. For more information, visit the Web site at: <http://www.export.gov>.

### TRADE DEVELOPMENT

ITA's Trade Development (TD) unit is the Commerce Department's link to U.S. industry. TD provides industry and market analysis, export promotion services, advocacy for U.S. companies bidding on foreign government contracts, and support for trade negotiations. TD offers an array of services to help small businesses increase their export potential.

#### *Industry Expertise*

TD's industry expertise encompasses the majority of U.S. business sectors. Industry sector specialists provide U.S. firms with: information and analysis of domestic and foreign industry trends; foreign market conditions and opportunities for specific products or services; information on foreign market tariffs and non-tariff barriers and regulations; advocacy assistance; business and cultural practices; and advice on business and cultural practices.



**Trade Negotiations and Agreements**

TD's industry expertise is the primary source used in trade negotiations by the President of the United States and the Office of the U.S. Trade Representative (USTR). TD's close interaction with industry, understanding of restrictions on market access, product standards and testing requirements, and knowledge of trade data assist negotiators in the drafting of trade agreements with maximum benefits for U.S. firms. Additionally, TD industry experts help monitor and enforce foreign governments' compliance with trade commitments through collaboration with other ITA units, including the US&FCS and Market Access and Compliance (MAC) regional desk officers, as well as the USTR.

**TD's INFORMATION TECHNOLOGIES INDUSTRIES**

TD's Deputy Assistant Secretary for Information Technology Industries (ITI) oversees the activities of the three (3) high-tech industry-focused offices: the Office of Information Technologies and Electronic Commerce (OITEC); the Office of Telecommunications Technologies (OTT); and the Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI).

**OFFICE OF INFORMATION TECHNOLOGIES AND ELECTRONIC COMMERCE**

OITEC focuses on numerous IT industry segments including but not limited to: computers and peripherals; software; networking equipment; and Internet and e-commerce technologies. The office conducts market research and provides general trade and policy analysis of the IT industry, including policy reviews of foreign countries' e-commerce laws and initiatives.

OITEC actively supports U.S. IT firms' efforts to expand their business overseas. Industry specialists track the growth and competitiveness of domestic and foreign IT industries; counsel U.S. businesses on overseas market conditions and the practical aspects of exporting their products; identify market barriers as they affect IT exports; and work closely with USTR to negotiate the removal of such barriers. The office's export promotion activities include trade missions, trade fairs, catalog shows, and technical seminars that introduce U.S. businesses to end-users and potential trading partners located overseas.

OITEC also fosters a favorable policy environment by focusing on keeping both the Internet and foreign markets open to private sector-driven global growth. OITEC participates in various fora such as the Organization for Economic Co-operation and Development (OECD), the World Trade Organization (WTO), the Asia Pacific Economic Cooperation forum (APEC), the U.S.-Japan information technology working group under the Regulatory Reform Initiative, the Free Trade Agreement of the Americas (FTAA) negotiations, as well as bilateral free trade agreements with Australia, Chile, and Singapore. The office oversees the Administration's E-Commerce Joint Statements with other governments, manages the Industry Functional Advisory Committee (IFAC-4) on E-Commerce, and participates in formal as well as informal policy dialogues with other nations.

Industry specialists compile and disseminate detailed information and analyses on the IT industry sectors they cover, contribute to the Department of Commerce *U.S. Industry & Trade Outlook* publication that describes current and future IT industry and market trends on a domestic and global basis and prepare with other ITI offices ExportIT reports on key foreign markets. These specialists also work to update and expand the [export.gov/infotech](http://export.gov/infotech) Web site with information on foreign markets and regulations, including tariff and tax rates for IT products, U.S. and foreign policies that affect IT exports, upcoming trade events, and additional government and private sector resources. The office also distributes a free electronic newsletter highlighting trade leads, partnering opportunities, and trade events.

To obtain more information, including a list of OITEC international trade specialists and the regions/industry sectors they cover, contact:

Office of Information Technologies and Electronic Commerce (OITEC)  
U.S. Department of Commerce, Room 2003  
14<sup>th</sup> Street & Constitution Avenue, N.W.  
Washington, DC 20230  
Tel: (202) 482-0216  
FAX: (202) 482-5522  
Internet: <http://www.export.gov/infotech>

#### **OFFICE OF TELECOMMUNICATIONS TECHNOLOGIES**

OTT's mission is to support the growth and competitiveness of the U.S. telecommunications equipment and services industries in foreign markets.

OTT provides business counseling to U.S. telecommunications firms seeking to enter or expand in specific markets by developing and disseminating information on the telecommunications market in foreign countries based upon information from US&FCS and a wide range of other industry resources. The office promotes international trade and investment opportunities for the U.S. telecommunications industry by sponsoring events that offer direct contact with foreign government and industry officials. OTT, in conjunction with sister ITA units and government agencies, acts as an intermediary between U.S. firms and foreign governments to provide advocacy on behalf of U.S. companies bidding on public projects abroad. It supports the USTR in trade negotiations to open foreign markets for U.S. telecommunications equipment and services exports. Additionally, OTT monitors both bilateral and multilateral telecommunications agreements and provides input to the USTR regarding compliance by foreign countries.

OTT conducts market research and statistical analysis of the domestic and international telecommunications industry and posts a variety of industry information to the [export.gov/infotech](http://export.gov/infotech) Web site. The office distributes complimentary electronic newsletters that deliver up-to-date information on foreign market opportunities and changes affecting the industry. OTT contributes the telecommunications chapters featured in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including a list of OTT international trade specialists and the regions/industry sectors they cover, contact:

Office of Telecommunications Technologies (OTT)  
U.S. Department of Commerce, Room 4324  
14<sup>th</sup> Street & Constitution Avenue, N.W.  
Washington, DC 20230  
Tel: (202) 482-4466  
FAX: (202) 482-5834  
Internet: <http://www.export.gov/infotech>

#### **OFFICE OF MICROELECTRONICS, MEDICAL EQUIPMENT, AND INSTRUMENTATION (OMMI)**

OMMI covers electronic components such as electron tubes, printed circuit boards, semiconductors, capacitors, resistors, transformers, and connectors, as well as semiconductor manufacturing equipment. Additionally, the office supports several industry sectors with high IT content, including medical and dental equipment and electronic medical apparatus, process control instruments, laboratory analytical instruments, optical instruments, and instruments used to measure electricity and electrical signals.

OMMI's primary mission is to promote exports and increase the international competitiveness of U.S. industry working in these sectors. It counsels U.S. firms on foreign market conditions and the specifics of exporting, using information from overseas US&FCS offices and a wide range of industry-related resources. OMMI staff work with private sector and Department of Commerce colleagues to develop trade missions, trade fairs, catalog shows, seminars, and other trade events that offer direct contact with foreign government officials, industry representatives, and end-users. In cooperation with other parts of ITA and U.S. government agencies, the office participates in trade negotiations and supports USTR efforts to eliminate or reduce regulatory and other types of barriers that hinder trade and investment in these industries.

OMMI staff gathers and disseminates market research and statistical analyses of the domestic and international microelectronics, medical equipment, and instrumentation industries. Trade and industry reports, trade statistics, information on foreign markets and regulations, U.S. and foreign policies that affect exports, trade events, and links to additional government and private sector resources are available on the [export.gov/infotech](http://export.gov/infotech) Web site. OMMI industry specialists profile current and future industry and market trends on a domestic and global basis in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including a list of OMMI international trade specialists and the regions/industry sectors they cover, contact:

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)  
U.S. Department of Commerce, Room 1015  
14th Street & Constitution Avenue, N.W.  
Washington, DC 20230

Tel: (202) 482-2470

FAX: (202) 482-0975

Internet: <http://www.export.gov/infotech>

## **OTHER TRADE DEVELOPMENT OFFICES AND PROGRAMS**

### **TRADE INFORMATION CENTER**

TD's Trade Information Center (TIC) is an excellent first stop for new-to-export companies seeking export assistance from the federal government. TIC Trade Specialists: 1) advise exporters on how to find and use government programs; 2) guide businesses through the export process; 3) provide country and regional business counseling, foreign import tariff/tax rates and customs procedures, trade opportunities and best prospects for U.S. companies, distribution channels, standards, and common commercial difficulties; 4) provide information on domestic and overseas trade events; and 5) provide sources of public and private sector export financing. TIC trade specialists also assist exporters in accessing reports and statistics from the computerized National Trade Data Bank and direct them to state and local trade organizations that provide export assistance. To contact the TIC, call 1-800-USA-TRADE; FAX (202) 482-4473; e-mail: [TIC@ita.doc.gov](mailto:TIC@ita.doc.gov); or visit the Web site <http://tradeinfo.doc.gov>.

### **ADVOCACY CENTER**

The Advocacy Center (AC) aims to ensure that U.S. companies of all sizes are treated fairly and evaluated on the technical and commercial merits of their proposals for foreign government tenders. Advocacy assistance is wide and varied, but often involves U.S. companies that must deal with foreign governments or government-owned corporations. Assistance can include the visit of a high-ranking U.S. government official to a key foreign official; direct support by U.S. officials (including Commerce and State Department officers) stationed overseas at the U.S. Embassies and Consulates; or, coordinated action by U.S. government agencies to provide maximum assistance. The AC is at the core of the President's National Export Strategy and its goal is to ensure opportunities for American companies. Since its creation in 1993, the AC has helped hundreds of U.S. companies in various industry sectors win foreign government contracts valued at more than \$2.5 billion. For more information, visit the AC's Web site: <http://www.trade.gov/advocacy>.

### **TRADE MISSIONS AND EVENTS**

Working in coordination with the private sector and the US&FCS, TD industry analysts help plan, organize, and execute trade events, including high-level executive missions with the Secretary or Under Secretary of Commerce. Additionally, there are a host of trade conferences and shows held throughout the U.S. and abroad. A searchable list of all ITA trade events can be found at <http://www.usatrade.gov>.

**SMALL BUSINESS PROGRAM**

ITA's Small Business Program is the focal point for trade policy issues concerning SMEs. The program brings the small business point of view to international trade policy discussions, primarily through the Industry Sector Advisory Committees (ISAC) on Small and Minority Business for Trade Policy Matters (ISAC 14), the only advisory committee to the U.S. Government on small and minority business export concerns. The Small Business Program also provides outreach to and plans events for small, women-owned, and minority-owned firms.

Additional information can be found on the Industry Consultations Program's Web site at <http://www.trade.gov/td/icp>, or by contacting the:

Industry Consultations Program  
U.S. Department of Commerce  
Tel: 202-482-3268  
FAX: 202-482-4452  
E-mail: [Trade\\_Advisory\\_Center@ita.doc.gov](mailto:Trade_Advisory_Center@ita.doc.gov)

**INDUSTRY CONSULTATIONS PROGRAM**

Industry has a voice in U.S. trade policy formulation through the Industry Consultations Program (ICP). The ICP includes more than 500 members and is comprised of seventeen (17) Industry Sector Advisory Committees (ISACs) on Trade Policy Matters and four (4) Industry Functional Committees (IFACs) on Trade Policy Matters. The ISACs represent industry sectors of the U.S. economy, including IT and small and minority businesses. The IFACs address crosscutting issues affecting all industry sectors - customs, standards, intellectual property rights, and e-commerce. Advisors on these committees have direct access to trade policymakers at the Department of Commerce and the USTR and help develop their industry's positions on U.S. trade policy and negotiation objectives.

Additional information can be found on the ICP's Web site at <http://www.trade.gov/td/icp>, or by contacting the:

Industry Consultations Program  
U.S. Department of Commerce  
Tel: 202-482-3268  
FAX: 202-482-4452  
E-mail: [Trade\\_Advisory\\_Center@ita.doc.gov](mailto:Trade_Advisory_Center@ita.doc.gov)

**EXPORT TRADING COMPANIES AND TRADE INTERMEDIARIES**

The Office of Export Trading Company Affairs (OETCA) promotes the formation and use of export trade intermediaries and the development of long-term joint export ventures by U.S. firms. OETCA administers two programs available to all U.S. exporters. The Export Trade Certificate of

Review Program provides antitrust protection to U.S. firms for collaborative export activities. The MyExports.com™ program is designed to help U.S. producers find export partners and locate export companies, freight forwarders, and other service firms that can facilitate export business. For more information, visit <http://www.trade.gov/oetca> and <http://www.myexports.com>.

### **MARKET DEVELOPMENT COOPERATOR PROGRAM**

MDCP is a competitive matching grants program that builds public-private partnerships by providing federal assistance to nonprofit export multipliers such as states, trade associations, chambers of commerce, world trade centers, and small business development centers. These multipliers are particularly effective in reaching and assisting SMEs. Applicants use their own creativity to design projects that will help SMEs to enter, expand, or maintain market share in targeted overseas markets. MDCP awards help underwrite the start-up costs of new export marketing, ventures which these groups are often reluctant to undertake without federal government support. For more information, visit <http://www.trade.gov/mdcp>.

### **THE U.S. COMMERCIAL SERVICE (US&FCS)**

The US&FCS, one of TD's sister units in ITA, assists U.S. firms in realizing their export potential by providing: 1) exporting advice; 2) information on overseas markets; 3) assistance in identifying international trading partners; 4) support for trade events; and 5) advocacy, among other services. US&FCS trade specialists work in more than 100 Export Assistance Centers across the United States and in more than 150 overseas posts, in approximately 80 foreign countries, which combined represent more than 96 percent of the world market for exports. Lists of trade specialists by U.S. city or country can be found at <http://www.usatrade.gov>.

### **INTERNATIONAL OPERATIONS**

Overseas US&FCS offices are housed in U.S. Embassies and Consulates where Commercial Officers serve as intermediaries to businesses and government officials in foreign markets. US&FCS staff members are industry-focused and offer numerous products and services that assist U.S. companies to enter or expand their sales in a particular market. The main activities of these offices include establishing key industry and foreign government contacts, helping match U.S. suppliers with local buyers, developing market research, and organizing or facilitating trade events. Contact information for US&FCS trade specialists who cover the IT, telecommunications, and e-commerce sectors in China is listed in the appendices of this report.

### **DOMESTIC OPERATIONS**

The US&FCS provides export counseling and marketing assistance to the U.S. business community through its 1,800 trade experts working in more than 100 domestic Export Assistance Centers (USEACs) located across the country. USEAC staff coordinate work closely with their

US&FCS colleagues stationed overseas to match U.S. suppliers with foreign buyers. USEACs help firms enter new markets and increase market share by identifying the best markets for their products and services, and developing an effective market entry strategy informed by input generated in the overseas offices. They also advise clients on practical exporting matters such as distribution channels, programs and services, and relevant trade shows and missions, as well as assisting with trade finance programs available through federal, state, and local entities.

## **US&FCS Services**

### *Market Research*

#### **Industry Sector Analysis (ISA)**

ISAs are structured market research reports produced on location in leading overseas markets and cover market size and outlook, with competitive and end-user analysis for the selected industry sector. ISAs are available through the U.S. Commercial Service's Web site <http://www.usatrade.gov> and are a component of the National Trade Data Bank (NTDB) subscription service detailed below.

#### **International Marketing Insight (IMI)**

IMIs are written by overseas and multilateral development bank staff and cover information on the dynamics of a particular industry sector in one foreign market. IMIs are available through the U.S. Commercial Service's Web site (<http://www.usatrade.gov>) and are a component of the NTDB subscription service detailed below.

#### **Country Commercial Guide (CCG)**

CCGs are prepared annually by U.S. Embassy staff and contain information on the business and economic situation of foreign countries and the political climate as it affects U.S. business. Each CCG contains the same chapters, covering topics such as marketing U.S. products, foreign trade regulations and standards, investment climate, business travel, and in-country contact information. CCGs are available through the U.S. Commercial Service's Web site (<http://www.usatrade.gov>) and are also a component of the NTDB subscription service noted below.

#### **National Trade Data Bank (NTDB)**

The U.S. Commercial Service contributes to the NTDB, a one-stop source of international documents, including market research reports, trade leads and contacts, statistical trade data collected by federal agencies that contains more than 200,000 trade-related information, and Country Commercial Guides. The NTDB subscription may be purchased on CD-ROM, accessed through the Internet (<http://www.stat-usa.gov>), or is accessible free of charge at federal depository libraries. Call 1-800-STAT-USA for more information and ordering instructions.



*Export Prospects***Platinum Key Service**

The Platinum Key offers customized, long-term assistance to U.S. companies seeking to enter a new market, win a contract, lower a trade barrier, or resolve complex issues. Fees depend on the scope of work.

**Gold Key Service**

The Gold Key is a custom-tailored service for U.S. firms planning to visit a country. This service provides assistance in developing a sound market strategy, orientation briefings, introductions to pre-screened potential partners, interpreters for meetings, and effective follow-up planning. The fees range from \$150 to \$700 (for the first day) per country.

**Flexible Market Research (FMR)**

FMR provides customized responses to questions and issues related to a client's product or service. Available on a quick turnaround basis, the research addresses overall marketability of the product, key competitors, price of comparable products, customary distribution and promotion practices, trade barriers, potential business partners, and more. Fees vary according to scope of work.

**International Partner Search (IPS)**

IPS provides a customized search that helps identify well-matched agents, distributors, licensees and strategic alliance partners. A fee of \$600 per country is charged.

**BuyUSA.com**

BuyUSA.com (<http://www.buyusa.com>) provides a one-stop international marketplace for U.S. small to medium-sized enterprises to identify potential international partners and transact business on-line. The BuyUSA.com e-marketplace includes pre-screened trade leads from around the world, as well as automated searching and sourcing of sales offers on-line. BuyUSA.com is the only Web site of its kind to combine an on-line interface with a worldwide network of one-on-one trade counselors.

*Export Promotion***International Buyer Program (IBP)**

IBP, supporting 28 major domestic trade exhibitions annually, undertakes for each show a worldwide promotional campaign aimed at maximizing international attendance through work

with the overseas network of Commercial Service and Embassy offices. Qualified buyers and prospective distributors, many brought as part of delegations led by overseas commercial staff, are assisted in meeting with interested exhibiting firms and provided services aimed at helping them find new suppliers and trade partners. Each show features an International Business Center at which export counseling, matchmaking, interpreter, and other business services are provided to international visitors and exhibitors.

### **Video Conferencing Programs**

The “Virtual Matchmaker,” “Video Gold Key,” and “Video Market Briefing” programs provide an effective tool to help U.S. companies assess an overseas market or overseas business contacts before venturing abroad to close a deal. Companies can use these cost-effective video services to interview international contacts, get a briefing from overseas industry specialists on prospects and opportunities, or develop a customized solution to international business needs.

### **Matchmaker Trade Delegations**

The Matchmaker Trade Delegation Program is designed to match small to medium-sized new-to-market or new-to-export U.S. firms with qualified business contacts abroad. Each mission targets major markets in two or three countries that have strong potential for U.S. goods and services. Delegation members travel to each country and benefit from export counseling, interpreter service and logistics support, market research, in-depth market briefings, and a personalized itinerary of business appointments screened by commercial specialists at U.S. Embassies and Consulates.

### **Product Literature Centers**

This program showcases U.S. company product literature through exhibits in international trade shows held in both mature and emerging markets. The Product Literature Center is a low cost, efficient way for small and medium-sized firms to get worldwide sales leads in their particular industry. A Commerce Department industry/international specialist or the U.S. Embassy operates Product Literature Centers. Visitors to Product Literature Centers are required to register and may take company literature with them. All sales leads are sent directly to the Product Literature Center participant.

### **Multi-State Catalog Exhibitions Program**

This program showcases U.S. company product literature in fast-growing markets within a geographic region. The U.S. Department of Commerce and representatives from state development agencies present product literature to hundreds of interested business prospects abroad and send the trade leads directly to U.S. participants.

**Commercial News USA (CNUSA)**

CNUSA, a catalog-magazine containing advertisements of U.S. products serves to promote U.S. products and services to more than 400,000 potential buyers and partners in 145 countries.

---



---

## APPENDICES

---



---

### APPENDIX A: INFORMATION TECHNOLOGY AGREEMENT PRODUCTS BY HARMONIZED SYSTEM CLASSIFICATION NUMBER

**Source: World Trade Organization**

HS96	HS description
3818	Chemical elements doped for use in electronics, in form of discs, wafers or similar forms; chemical compounds doped for use in electronics
8469 11	Word processing machines
8470	Calculating machines and pocket-size data recording, reproducing and displaying machines with a calculating function; accounting machines, postage franking machines, ticket issuing machines and similar machines, incorporating a calculating device; cash registers:
8470 10	Electronic calculators capable of operating without an external source of electric power and pocket size data recording, reproducing and displaying machines with calculating functions
8470 21	Other electronic calculating machines incorporating a printing device
8470 29	Other
8470 30	Other calculating machines
8470 40	Accounting machines
8470 50	Cash registers
8470 90	Other
8471	Automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included:
8471 10	Analogue or hybrid automatic data processing machines
8471 30	Portable digital automatic data processing machines, weighing no more than 10 kg, consisting of at least a central processing unit, a keyboard and a display
8471 41	Other digital automatic data processing machines comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined
8471 49	Other digital automatic data processing machines presented in the form of systems
8471 50	Digital processing units other than those of subheading 8471 41 and 8471 49, whether or not in the same housing one or two of the following types of units : storage units, input units, output units
8471 60	Input or output units, whether or not containing storage units in the same housing
8471 70	Storage units, including central storage units, optical disk storage units, hard disk drives and magnetic tape storage units
8471 80	Other units of automatic data processing machines
8471 90	Other
ex 8472 90	Automatic teller machines
8473 21	Parts and accessories of the machines of heading No 8470 of the electronic calculating machines of subheading 8470 10, 8470 21 and 8470 29
8473 29	Parts and accessories of the machines of heading No 8470 other than the electronic calculating machines of subheading 8470 10, 8470 21 and 8470 29

- 8473 30 Parts and accessories of the machines of heading No 8471
- 8473 50 Parts and accessories equally suitable for use with machines of two or more of the headings Nos. 8469 to 8472
- ex 8504 40 Static converters for automatic data processing machines and units thereof, and telecommunication apparatus
- ex 8504 50 Other inductors for power supplies for automatic data processing machines and units thereof, and telecommunication apparatus
- 8517 Electrical apparatus for line telephony or line telegraphy, including line telephone sets with cordless handsets and telecommunication apparatus for carrier current line systems or for digital line systems; videophones:
  - 8517 11 Line telephone sets with cordless handsets
  - 8517 19 Other telephone sets and videophones
  - 8517 21 Facsimile machines
  - 8517 22 Teleprinters
  - 8517 30 Telephonic or telegraphic switching apparatus
  - 8517 50 Other apparatus, for carrier current line systems or for digital line systems
  - 8517 80 Other apparatus including entry phone systems
  - 8517 90 Parts of apparatus of heading 8517
- ex 8518 10 Microphones having a frequency range of 300 Hz to 3,4 KHz with a diameter of not exceeding 10 mm and a height not exceeding 3 mm, for telecommunication use
- ex 8518 30 Line telephone handsets
- ex 8518 29 Loudspeakers, without housing, having a frequency range of 300 Hz to 3,4 KHz with a diameter of not exceeding 50 mm, for telecommunication use
- 8520 20 Telephone answering machines
- 8523 11 Magnetic tapes of a width not exceeding 4 mm
- 8523 12 Magnetic tapes of a width exceeding 4 mm but not exceeding 6,5 mm
- 8523 13 Magnetic tapes of a width exceeding 6,5 mm
- 8523 20 Magnetic discs
- 8523 90 Other
- 8524 31 Discs for laser reading systems for reproducing phenomena other than sound or image
- ex 8524 39 Other : for reproducing representations of instructions, data, sound, and image, recorded in a machine readable binary form, and capable of being manipulated or providing interactivity to a user, by means of an automatic data processing machine
- 8524 40 Magnetic tapes for reproducing phenomena other than sound or image
- 8524 91 Media for reproducing phenomena other than sound or image
- ex 8424 99 Other : for reproducing representations of instructions, data, sound, and image, recorded in a machine readable binary form, and capable of being manipulated or providing interactivity to a user, by means of an automatic data processing machine
- ex 8525 10 Transmission apparatus other than apparatus for radio broadcasting or television
- 8525 20 Transmission apparatus incorporating reception apparatus
- ex 8525 40 Digital still image video cameras
- ex 8527 90 Portable receivers for calling, alerting or paging
- ex 8529 10 Aerials or antennae of a kind used with apparatus for radiotelephony and radiotelegraphy
- ex 8529 90 Parts of: transmission apparatus other than apparatus for radio broadcasting or television transmission apparatus incorporating reception apparatus digital still image video cameras, portable receivers for calling, alerting or paging
- 8531 20 Indicator panels incorporating liquid crystal devices (LCD) or light emitting diodes (LED)
- ex 8531 90 Parts of apparatus of subheading 8531 20
- 8532 Electrical capacitors, fixed, variable or adjustable (preset):
  - 8532 10 Fixed capacitors designed for use in 50/60 Hz circuits and having a reactive power handling capacity of not less than 0,5 kvar (power capacitors)

- 8532 21 Tantalum fixed capacitors
- 8532 22 Aluminium electrolytic fixed capacitors
- 8532 23 Ceramic dielectric, single layer fixed capacitors
- 8532 24 Ceramic dielectric, multilayer fixed capacitors
- 8532 25 Dielectric fixed capacitors of paper or plastics
- 8532 29 Other fixed capacitors
- 8532 30 Variable or adjustable (preset) capacitors
- 8532 90 Parts
- 8533 Electrical resistors (including rheostats and potentiometers), other than heating resistors:
  - 8533 10 Fixed carbon resistors, composition or film types
  - 8533 21 Other fixed resistors for a power handling capacity not exceeding 20 W
  - 8533 29 Other fixed resistors for a power handling capacity of 20 W or more
  - 8533 31 Wire-wound variable resistors, including rheostats and potentiometers, for a power handling capacity not exceeding 20 W
  - 8533 39 Wire-wound variable resistors, including rheostats and potentiometers, for a power handling capacity of 20 W or more
  - 8533 40 Other variable resistors, including rheostats and potentiometers
  - 8533 90 Parts
- 8534 Printed circuits
- ex 8536 50 Electronic AC switches consisting of optically coupled input and output circuits (Insulated thyristor AC switches)
- ex 8536 50 Electronic switches, including temperature protected electronic switches, consisting of a transistor and a logic chip (chip-on-chip technology) for a voltage not exceeding 1000 volts
- ex 8536 50 Electromechanical snap-action switches for a current not exceeding 11 amps
- ex 8536 69 Plugs and sockets for coaxial cables and printed circuits
- ex 8536 90 Connection and contact elements for wires and cables
  - 8541 Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes; mounted piezoelectric crystals:
    - 8541 10 Diodes, other than photosensitive or light emitting diodes
    - 8541 21 Transistors, other than photosensitive transistors, with a dissipation rate of less than 1 W
    - 8541 29 Transistors, other than photosensitive transistors, with a dissipation rate of 1 W or more
    - 8541 30 Thyristors, diacs and triacs, other than photosensitive devices
    - 8541 40 Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes
    - 8541 50 Other semiconductor devices
    - 8541 60 Mounted piezoelectric crystals
    - 8541 90 Parts
  - 8542 Electronic integrated circuits and microassemblies
    - 8542 12 Cards incorporating an electronic integrated circuit ('smart' cards)
    - 8542 13 Metal oxide semiconductors (MOS technology)
    - 8542 14 Circuits obtained by bipolar technology
    - 8542 19 Other monolithic digital integrated circuits, including circuits obtained by a combination of bipolar and MOS technologies (BIMOS technology)
    - 8542 30 Other monolithic integrated circuits
    - 8542 40 Hybrid integrated circuits
    - 8542 50 Electronic microassemblies
    - 8542 90 Part
  - 8543 81 Proximity cards and tags
- ex 8543 89 Electrical machines with translation or dictionary functions

- ex 8544 41 Other electric conductors, for a voltage not exceeding 80 V, fitted with connectors, of a kind used for telecommunications
- ex 8544 49 Other electric conductors, for a voltage not exceeding 80 V, not fitted with connectors, of a kind used for telecommunications
- ex 8544 51 Other electric conductors, for a voltage exceeding 80 V but not exceeding 1000 V, fitted with connectors, of a kind used for telecommunications
- 8544 70 Optical fibre cables
- 9009 11 Electrostatic photocopying apparatus, operating by reproducing the original image directly onto the copy (direct process)]
- 9009 21 Other photocopying apparatus, incorporating an optical system
- 9009 90 Parts and accessories
- 9026 Instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases (for example, flow meters, level gauges, manometers, heat meters), excluding instruments and apparatus of heading No 9014, 9015, 9028 or 9032:
- 9026 10 Instruments for measuring or checking the flow or level of liquids
- 9026 20 Instruments and apparatus for measuring or checking pressure
- 9026 80 Other instruments and apparatus for measuring or checking of heading 9026
- 9026 90 Parts and accessories of instruments and apparatus of heading 9026
- 9027 20 Chromatographs and electrophoresis instruments
- 9027 30 Spectrometers, spectrophotometers and spectrographs using optical radiations (UV, visible, IR)
- 9027 50 Other instruments and apparatus using optical radiations (UV, visible, IR) of heading No 9027
- 9027 80 Other instruments and apparatus of heading No 9027 (other than those of heading No 9027 10)
- ex 9027 90 Parts and accessories of products of heading 9027, other than for gas or smoke analysis apparatus and microtomes
- 9030 40 Instruments and apparatus for measuring and checking, specially designed for telecommunications (for example, cross-talk meters, gain measuring instruments, distortion factor meters, psophometers)

### Semiconductor manufacturing and testing equipment and parts thereof

HS Code	Description	Comments
ex 7017 10	Quartz reactor tubes and holders designed for insertion into diffusion and oxidation furnaces for production of semiconductor wafers	For Attachment B
ex 8419 89	Chemical vapor deposition apparatus for semiconductor production	For Attachment B
ex 8419 90	Parts of chemical vapor deposition apparatus for semiconductor production	For Attachment B
ex 8421 19	Spin dryers for semiconductor wafer processing	
ex 8421 91	Parts of spin dryers for semiconductor wafer processing	
ex 8424 89	Deflash machines for cleaning and removing contaminants from the metal leads of semiconductor packages prior to the electroplating process	
ex 8424 89	Spraying appliances for etching, stripping or cleaning semiconductor wafers	
ex 8424 90	Parts of spraying appliances for etching, stripping or cleaning semiconductor wafers	
ex 8456 10	Machines for working any material by removal of material, by laser or other light or photo beam in the production of semiconductor wafers	
ex 8456 91	Apparatus for stripping or cleaning semiconductor wafers	For Attachment B
8456 91	Machines for dry etching patterns on semiconductor materials	
ex 8456 99	Focused ion beam milling machines to produce or repair masks and reticles for patterns on semiconductor devices	
ex 8456 99	Laser cutters for cutting contacting tracks in semiconductor production by laser beam	For Attachment B
ex 8464 10	Machines for sawing monocrystal semiconductor boules into slices, or wafers into chips	For Attachment B
ex 8464 20	Grinding, polishing and lapping machines for processing of semiconductor wafers	
ex 8464 90	Dicing machines for scribing or scoring semiconductor wafers	



## Information Technology Industries

A-5

ex 8466 91	Parts for machines for sawing monocrystal semiconductor boules into slices, or wafers into chips	For Attachment B
ex 8466 91	Parts of dicing machines for scribing or scoring semiconductor wafers	For Attachment B
ex 8466 91	Parts of grinding, polishing and lapping machines for processing of semiconductor wafers	
ex 8466 93	Parts of focused ion beam milling machines to produce or repair masks and reticles for patterns on semiconductor devices	
ex 8466 93	Parts of laser cutters for cutting contacting tracks in semiconductor production by laser beam	For Attachment B
ex 8466 93	Parts of machines for working any material by removal of material, by laser or other light or photo beam in the production of semiconductor wafers	
ex 8456 93	Parts of apparatus for stripping or cleaning semiconductor wafers	For Attachment B
ex 8466 93	Parts of machines for dry etching patterns on semiconductor materials	
ex 8477 10	Encapsulation equipment for assembly of semiconductors	For Attachment B
ex 8477 90	Parts of encapsulation equipment	For Attachment B
ex 8479 50	Automated machines for transport, handling and storage of semiconductor wafers, wafer cassettes, wafer boxes and other material for semiconductor devices	For Attachment B
ex 8479 89	Apparatus for growing or pulling monocrystal semiconductor boules	
ex 8479 89	Apparatus for physical deposition by sputtering on semiconductor wafers	For Attachment B
ex 8479 89	Apparatus for wet etching, developing, stripping or cleaning semiconductor wafers and flat panel displays	For Attachment B
ex 8479 89	Die attach apparatus, tape automated bonders, and wire bonders for assembly of semiconductors	For Attachment B
ex 8479 89	Encapsulation equipment for assembly of semiconductors	For Attachment B
ex 8479 89	Epitaxial deposition machines for semiconductor wafers	
ex 8479 89	Machines for bending, folding and straightening semiconductor leads	For Attachment B
ex 8479 89	Physical deposition apparatus for semiconductor production	For Attachment B
ex 8479 89	Spinners for coating photographic emulsions on semiconductor wafers	For Attachment B
ex 8479 90	Part of apparatus for physical deposition by sputtering on semiconductor wafers	For Attachment B
ex 8479 90	Parts for die attach apparatus, tape automated bonders, and wire bonders for assembly of semiconductors	For Attachment B
ex 8479 90	Parts for spinners for coating photographic emulsions on semiconductor wafers	For Attachment B
ex 8479 90	Parts of apparatus for growing or pulling monocrystal semiconductor boules	
ex 8479 90	Parts of apparatus for wet etching, developing, stripping or cleaning semiconductor wafers and flat panel displays	For Attachment B
ex 8479 90	Parts of automated machines for transport, handling and storage of semiconductor wafers, wafer cassettes, wafer boxes and other material for semiconductor devices	For Attachment B
ex 8479 90	Parts of encapsulation equipment for assembly of semiconductors	For Attachment B
ex 8479 90	Parts of epitaxial deposition machines for semiconductor wafers	
ex 8479 90	Parts of machines for bending, folding and straightening semiconductor leads	For Attachment B
ex 8479 90	Parts of physical deposition apparatus for semiconductor production	For Attachment B
ex 8480 71	Injection and compression moulds for the manufacture of semiconductor devices	
ex 8514 10	Resistance heated furnaces and ovens for the manufacture of semiconductor devices on semiconductor wafers	
ex 8514 20	Inductance or dielectric furnaces and ovens for the manufacture of semiconductor devices on semiconductors wafers	
ex 8514 30	Apparatus for rapid heating of semiconductor wafers	For Attachment B
ex 8514 30	Parts of resistance heated furnaces and ovens for the manufacture of semiconductor devices on semiconductor wafers	
ex 8514 90	Parts of apparatus for rapid heating of wafers	For Attachment B
ex 8514 90	Parts of furnaces and ovens of Headings No 8514 10 to No 8514 30	

**A-6*****Information Technology Industries***

ex 8536 90	Wafer probers	For Attachment B
8543 11	Ion implanters for doping semiconductor materials	
ex 8543 30	Apparatus for wet etching, developing, stripping or cleaning semiconductor wafers and flat panel displays	For Attachment B
ex 8543 90	Parts of apparatus for wet etching, developing, stripping or cleaning semiconductor wafers and flat panel displays	For Attachment B
ex 8543 90	Parts of ion implanters for doping semiconductor materials	
9010 41 to 9010 49	Apparatus for projection, drawing or plating circuit patterns on sensitized semiconductor materials and flat panel displays	
ex 9010 90	Parts and accessories of the apparatus of Headings No 9010 41 to 9010 49	
ex 9011 10	Optical stereoscopic microscopes fitted with equipment specifically designed for the handling and transport of semiconductor wafers or reticles	For Attachment B
ex 9011 20	Photo micrographic microscopes fitted with equipment specifically designed for the handling and transport of semiconductor wafers or reticles	For Attachment B
ex 9011 90	Parts and accessories of optical stereoscopic microscopes fitted with equipment specifically designed for the handling and transport of semiconductor wafers or reticles	For Attachment B
ex 9011 90	Parts and accessories of photo micrographic microscopes fitted with equipment specifically designed for the handling and transport of semiconductor wafers or reticles	For Attachment B
ex 9012 10	Electron beam microscopes fitted with equipment specifically designed for the handling and transport of semiconductor wafers or reticles	For Attachment B
ex 9012 90	Parts and accessories of electron beam microscopes fitted with equipment specifically designed for the handling and transport of semiconductor wafers or reticles	For Attachment B
ex 9017 20	Pattern generating apparatus of a kind used for producing masks or reticles from photo resist coated substrates	For Attachment B
ex 9017 90	Parts and accessories for pattern generating apparatus of a kind used for producing masks or reticles from photo resist coated substrates	For Attachment B
ex 9017 90	Parts of such pattern generating apparatus	For Attachment B
9030 82	Instruments and apparatus for measuring or checking semiconductor wafers or devices	
ex 9030 90	Parts and accessories of instruments and apparatus for measuring or checking semiconductor wafers or devices	
ex 9030 90	Parts of instruments and appliances for measuring or checking semiconductor wafers or devices	
9031 41	Optical instruments and appliances for inspecting semiconductor wafers or devices or for inspecting masks, photo masks or reticles used in manufacturing semiconductor devices	
ex 9031 49	Optical instruments and appliances for measuring surface particulate contamination on semiconductor wafers	
ex 9031 90	Parts and accessories of optical instruments and appliances for inspecting semiconductor wafers or devices or for inspecting masks, photo masks or reticles used in manufacturing semiconductor devices	
ex 9031 90	Parts and accessories of optical instruments and appliances for measuring surface particulate contamination on semiconductor wafers	

Positive list of specific products to be covered by this agreement wherever they are classified in the HS.

Where parts are specified, they are to be covered in accordance with HS Notes 2(b) to Section XVI and Chapter 90, respectively.

Computers: automatic data processing machines capable of 1) storing the processing program or programs and at least the data immediately necessary for the execution of the program; 2) being freely programmed in accordance with the requirements of the user; 3) performing arithmetical computations specified by the user; and 4) executing, without human intervention, a processing program which requires them to modify their execution, by logical decision during the processing run. The agreement covers such automatic data processing machines whether or not they are able to receive and process with the assistance of central processing unit telephony signals, television signals, or other analogue or digitally processed audio or video signals. Machines performing a specific function other than data processing, or incorporating or working in conjunction with an automatic data processing machine, and not otherwise specified under Attachment A or B, are not covered by this agreement.

Electric amplifiers when used as repeaters in line telephony products falling within this agreement, and parts thereof  
Flat panel displays (including LCD, Electro Luminescence, Plasma and other technologies) for products falling within this agreement, and parts thereof.

Network equipment: Local Area Network (LAN) and Wide Area Network (WAN) apparatus, including those products dedicated for use solely or principally to permit the interconnection of automatic data processing machines and units thereof for a network that is used primarily for the sharing of resources such as central processor units, data storage devices and input or output units including adapters, hubs, inline repeaters, converters, concentrators, bridges and routers, and printed circuit assemblies for physical incorporation into automatic data processing machines and units thereof.

Monitors : display units of automatic data processing machines with a cathode ray tube with a dot screen pitch smaller than 0,4 mm not capable of receiving and processing television signals or other analogue or digitally processed audio or video signals without assistance of a central processing unit of a computer as defined in this agreement. The agreement does not, therefore, cover televisions, including high definition televisions.

Optical disc storage units, for automatic data processing machines (including CD drives and DVDdrives), whether or not having the capability of writing/recording as well as reading, whether or not in their own housings.

Paging alert devices , and parts thereof .

Plotters whether input or output units of HS heading No 8471 or drawing or drafting machines of HS heading No 9017.

Printed Circuit Assemblies for products falling within this agreement, including such assemblies for external connections such as cards that conform to the PCMCIA standard. Such printed circuit assemblies consist of one or more printed circuits of heading 8534 with one or more active elements assembled thereon, with or without passive elements "Active elements" means diodes, transistors, and similar semiconductor devices, whether or not photosensitive, of heading 8541, and integrated circuits and micro assemblies of heading 8542.

Projection type flat panel display units used with automatic data processing machines which can display digital information generated by the central processing unit.

Proprietary format storage devices including media therefore for automatic data processing machines, with or without removable media and whether magnetic, optical or other technology, including Bernoulli Box, Syquest, or Zipdrive cartridge storage units.

Multimedia upgrade kits for automatic data processing machines, and units thereof, put up for retail sale, consisting of, at least, speakers and/or microphones as well as a printed circuit assembly that enables the ADP machines and units thereof to process audio signals (sound cards).

Set top boxes which have a communication function : a microprocessor-based device incorporating a modem for gaining access to the Internet, and having a function of interactive information exchange

**APPENDIX B:**  
**REGULATIONS ON TELECOMMUNICATIONS OF THE PEOPLE'S REPUBLIC OF CHINA<sup>1</sup>**

*Order No. 291 of the State Council of the People's Republic of China*

*Adopted by the 31<sup>st</sup> Standing Committee Session of the State Council on September 20, 2000, the Regulations on Telecommunications of the People's Republic of China and is hereby officially promulgated.*

*—Premier Zhu Rongji, September 25, 2000*

**CHAPTER ONE: GENERAL PROVISIONS**

Article 1: These Regulations have been formulated in order to regulate the telecommunications market, protect the lawful rights and interests of telecommunications subscribers and telecommunications business operators, ensure the security of telecommunications networks and information and promote the healthy development of the telecommunications industry.

Article 2: Anyone that engages in telecommunications activities or activities related to telecommunications in the People's Republic of China must abide by these Regulations. For the purposes of these Regulations, the term "telecommunications" means the activity of using wired or wireless electromagnetic or optoelectronic systems to transmit or receive voice, text, data, images or any other form of information.

Article 3: The State Council's department in charge of the information industry shall supervise and administer the telecommunications industry nationwide in accordance with these Regulations.

The telecommunications administration authorities of the provinces, autonomous regions and municipalities directly under the central government shall, under the leadership of the State Council's department in charge of the information industry, supervise and administer the telecommunications industry within their respective jurisdictions in accordance with these Regulations.

Article 4: The supervision and administration of telecommunications shall conform with the principles of separation of government and enterprise, the removal of monopoly control, the encouragement of competition, the promotion of development, transparency, fairness and impartiality.

Telecommunications business operators shall operate in accordance with the law, abide by business ethics and submit themselves to supervision and inspection that is carried out in accordance with the law.

Article 5: Telecommunications business operators shall provide rapid, accurate, secure, convenient and reasonably priced telecommunications services to telecommunications subscribers.

Article 6: The security of telecommunications networks and information shall be protected by law. No organization or individual may use a telecommunications network to engage in activities that compromise State security or prejudice the public interest or the lawful rights and interests of third parties.

## **CHPATER TWO: TELECOMMUNICATIONS MARKET**

### **Section One: Telecommunications Business Permits**

Article 7: The State implements a system of permits for the operation of telecommunications business that are classified according to the type of telecommunications business.

A telecommunications service operating permit issued by the State Council's department in charge of the information industry or the telecommunications administration authority of a province, autonomous region or municipality directly under the central government must be obtained in accordance with these Regulations in order to engage in telecommunications business.

No organization or individual may engage in telecommunications business activities without obtaining a telecommunications service operating permit.

Article 8: Telecommunications business is divided into basic telecommunications services and value added telecommunications services.

“Basic telecommunications services” means the business of providing public network infrastructure, public data transmission and basic voice communications services. “Value-added telecommunications services” means the telecommunications and information services provided through the public network infrastructure.

The specific classification of types of telecommunications services is provided in the Classification of Telecommunications Services attached hereto. The State Council's department in charge of the Information industry may make partial adjustments to the categories of telecommunications services listed in the Classification in light of actual circumstances and publish it anew.

Article 9: The operation of basic telecommunication services shall require the examination and approval of the State Council's department in charge of the information industry and the obtaining of a Basic Telecommunications Service Operating Permit.

The operation of value-added telecommunications services covering an area across two or more provinces, autonomous regions and/or municipalities directly under the central government shall require the examination and approval of the State Council's department in charge of the information industry and the obtaining of a Cross-regional Value-added Telecommunications Service Operating Permit. The operation of value-added telecommunications services covering an area within one province, autonomous region or municipality directly under the central government shall require the examination and approval of the telecommunications administration authority of the said province,

autonomous region or municipality directly under the central government and the obtaining of a Value-added Telecommunications Service Operating Permit.

If new technology is used to provide, on a trial basis, a new type of telecommunications service not listed in the Classification of Telecommunications Services, such service shall be placed on the record with the telecommunications administration authority of the province, autonomous region or municipality directly under the central government.

Article 10: The following conditions shall be met in order to operate basic telecommunications services:

- (1) the operator shall be a legally established company that specializes in basic telecommunications services and in which the State's equity or shareholding is not less than 51%;
- (2) there is a feasibility study and a technical plan for formation of the network;
- (3) there are funds and specialized personnel commensurate with the business activities to be engaged in;
- (4) there is a site and corresponding resources to carry out the business activities;
- (5) the operator has the reputation or the capability to provide long term service to its subscribers; and
- (6) other conditions specified by the State.

Article 11: When applying to operate basic telecommunications services, an application accompanied by documentation related to the conditions specified in Article 10 hereof shall be submitted to the State Council's department in charge of the information industry. The State Council's department in charge of the information industry shall complete its examination and render its decision to approve or reject the application within 180 days of the date of the receipt of such application. If it approves the application it shall issue a Basic Telecommunications Service Operating Permit and if it rejects the application it shall notify the applicant in writing and explain the reason therefor.

Article 12: When examining an application for the operation of Basic Telecommunications Services, the State Council's department in charge of the information industry shall consider such factors as State security, telecommunications network security, continuous usability of telecommunications resources, environmental protection and the state of competition in the telecommunications market, etc.

The issuance of Basic Telecommunications Service Operating Permits shall require the invitation of tenders in accordance with the relevant State regulations.

Article 13: The following conditions shall be met in order to operate value-added telecommunications services:

- (1) the operator shall be a legally established company;
- (2) there are funds and specialized personnel commensurate with the business activities to be developed;
- (3) the operator has the reputation or the capability to provide long term service to its subscribers; and

(4) other conditions specified by the State.

Article 14: When applying to operate value-added telecommunications services, an application accompanied by documentation related to the conditions specified in Article 13 hereof shall be submitted to the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government pursuant to the second paragraph of Article 9 hereof. If the relevant State regulations require that the value-added telecommunications service applied for be examined and approved by the relevant competent authority, the approval document from the relevant competent authority shall also be submitted.

The State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall complete its examination and render its decision to approve or reject the application within 60 days of the date of the receipt of such application. If it approves the application, it shall issue a Crossregional

Value-added Telecommunications Service Operating Permit or a Value-added Telecommunications Service Operating Permit and if it rejects the application, it shall notify the applicant in writing and explain the reason therefor.

Article 15: If a telecommunications business operator changes the operating entity or its scope of business during the course of operations, or if it ceases operations, it shall submit an application to the original permit issuing authority 90 days in advance and carry out the appropriate procedures. If it is ceasing operations, it shall also duly take care of the consequences thereof, in accordance with the relevant State regulations.

Article 16: After receiving approval to engage in telecommunications business, the operator shall register with the enterprise registration authority on the strength of its legally obtained telecommunications service operating permit.

Operators of dedicated telecommunications networks that operate local telecommunications services shall submit an application in accordance with the conditions and the procedures specified herein and, after receiving approval and obtaining a telecommunications service operating permit, carry out registration procedures in accordance with the provisions of the preceding paragraph.

## Section Two: Interconnection of Telecommunications Networks

Article 17: Interconnection of telecommunications networks shall be effected on the basis of the principles of technical feasibility, economic sense, fairness, impartiality and mutual complementation.

Leading telecommunications business operators may not refuse interconnection requests from other telecommunications business operators and operators of dedicated networks.

For the purposes of the preceding paragraph, the term "leading telecommunications business operators" means operators that control vital telecommunications infrastructure, have a relatively



large share of the telecommunications market and can materially influence the entry of other telecommunications business operators into the telecommunications business market.

Leading telecommunications business operators shall be determined by the State Council's department in charge of the information industry.

Article 18: A leading telecommunications business operator shall formulate interconnection rules that include such details as the procedure and time limit for network interconnection and a list of unbundled network elements in accordance with the principles of non-discrimination and transparency. The interconnection rules shall be submitted to the State Council's department in charge of the information industry for its examination and consent. Such connection rules shall be binding on the interconnection activities of the leading telecommunications business operator.

Article 19: Interconnections between public telecommunications networks and between public telecommunications networks and dedicated telecommunications networks shall require the holding of consultations and entry into an agreement on network interconnection between the parties to the interconnection in accordance with the regulations for the administration of network interconnections formulated by the State Council's department in charge of the information industry.

Network interconnection agreements shall be placed on the record with the State Council's department in charge of the information industry.

Article 20: If the consultations between the parties to a network interconnection fail to produce a network interconnection agreement, either party may apply to the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government, depending on the area covered by the network interconnection, for mediation within 60 days from the date a party made the interconnection request.

The authority receiving the application shall mediate in accordance with the principles specified in the first paragraph of Article 17 hereof in order to cause the parties to the network interconnection to reach an agreement. If the parties to the network interconnection are unable to reach an agreement through mediation within 45 days after the date either or both parties applied for mediation, the mediating authority shall randomly invite telecommunications technology experts and other experts in related fields to conduct open discussions and put forward a network interconnection plan. The mediating authority shall render a decision based on the conclusions reached by the experts in their discussions and the network interconnection plan they put forward, and forcibly effectuate the interconnection.

Article 21: The parties to the network interconnection must effectuate the interconnection within the time limit specified in the agreement or decision. Neither party may sever the interconnection without the approval of the State Council's department in charge of the information industry. If a malfunction occurs in the network interconnection's communications technology, the parties shall promptly take effective measures to eliminate it. If a dispute arises between the parties to the network

interconnection during the interconnection of their networks, such dispute shall be handled in accordance with the procedures and methods specified in Article 20 hereof.

The quality of communications through the network interconnection shall comply with the relevant State standards. When a leading telecommunications business operator provides network interconnections to other telecommunications business operators, its service quality shall not be inferior to the quality of similar services on its own network or the quality of similar services it provides to its subsidiaries or branches.

Article 22: The settlement and apportionment of fees for network interconnections shall be handled in accordance with the relevant State regulations, and no fee additional to the specified rate may be charged.

The technical standards, fee settlement methods and specific administration regulations for network interconnections shall be formulated by the State Council's department in charge of the information industry.

### Section Three: Telecommunications Charges

Article 23: Cost shall be the basic principle for the fixing of telecommunications charge rates, while such factors as the development requirements of the national economy and society, the development of the telecommunications industry and the telecommunications subscribers' ability to pay shall also be taken into consideration.

Article 24: Telecommunications charges are divided into those regulated by the market, those guided by the government and those fixed by the government. Charges for basic telecommunications services shall be fixed by the government, guided by the government or regulated by the market. Charges for value-added telecommunications services shall be regulated by the market or guided by the government.

Charges for telecommunications services for which there is sufficient competition in the market shall be regulated by the market.

The classification list for the administration of telecommunications charges that are fixed by the government, guided by the government or regulated by the market shall be formulated, and published for implementation, by the State Council's department in charge of the information industry after seeking the opinion of the State Council's department in charge of pricing.

Article 25: The State Council's department in charge of the information industry shall propose the important telecommunications service charge rates that are to be fixed by the government, seek the opinion of the State Council's department in charge of pricing and issue and implement such charge rates after approval by the State Council.

The band for telecommunications service charge rates that are to be guided by the government shall be formulated, and published for implementation, by the State Council's department in charge of

the information industry after seeking the opinion of the State Council's department in charge of pricing. Telecommunications business operators shall autonomously determine their charge rates within the band and file their charge rates with the telecommunications administration authority of the province, autonomous region or municipality directly under the central government for the record.

Article 26: When formulating telecommunications service charge rates that are to be fixed or guided by the government, the opinions of telecommunications business operators, telecommunications subscribers and other relevant parties shall be obtained through the holding of hearings.

Telecommunications business operators shall submit accurate and complete business cost data and other relevant information pursuant to the request of the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government.

#### Section Four: Telecommunications Resources

Article 27: The State shall make unified plans for, centrally administer and rationally allocate telecommunications resources and implement a system of compensation for use thereof.

For the purposes of the preceding paragraph, the term "telecommunications resources" refers to such limited resources used to enable telecommunications functions as radio frequencies, orbital slots and telecommunications network numbers. Article 28: Telecommunications business operators that possess or use telecommunications resources shall pay a telecommunications Resource fee. The specific measures for charging fees shall be formulated by the State Council's department in charge of the information industry in concert with the State Council's finance department and department in charge of pricing, and, after approval by the State Council, be published for implementation.

Article 29: When allocating telecommunications resources, consideration shall be given to telecommunications Resource planning, the purposes for which such resources will be used and projected service capabilities.

Telecommunications resources may be allocated through allotment or auction. Entities that have obtained the right to use telecommunication resources shall, within the specified time limit, commence using the resources allocated to them and attain the minimum specified scale of use.

Telecommunications resources may not be used, assigned or leased nor the purpose for which they are used changed without the approval of the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government.

Article 30: After a user of telecommunications resources legally obtains numeric resources for a telecommunications network, leading telecommunications business operators and other relevant

work units shall be under obligation to adopt the necessary technical measures to cooperate with the user of the telecommunications resources in enabling such user's numeric resources to function.

If laws or administrative regulations contain special provisions concerning the administration of telecommunications resources, such provisions shall govern.

### **CHAPTER THREE: TELECOMMUNICATIONS SERVICES**

Article 31: Telecommunications business operators shall provide services to telecommunications subscribers in accordance with the telecommunications service rates specified by the State. The types and scopes of, and the charge rates and time limits for, the services provided by a telecommunications business operator shall be made public and filed with the telecommunications administration authority of the province, autonomous region or municipality directly under the central government for the record.

Telecommunications subscribers have the right to select at their own discretion the various types of legally operated telecommunications service that they wish to use.

Article 32: When a telecommunications subscriber applies for telecommunications terminal equipment to be installed, or to be reinstalled in a new location, the telecommunications business operator shall ensure that the equipment is installed and functioning within the operator's published time limit. If the equipment is not installed and functioning within the time limit due to a reason attributable to the telecommunications business operator, such operator shall pay the telecommunications subscriber liquidated damages at the rate of 1% per day of the fee for the installation, the fee for the reinstallation in a new location or other fee charged.

Article 33: If a telecommunications subscriber reports an interruption of telecommunications services, the telecommunications business operator shall make repairs or tune the connection within 48 hours, if in an urban area, or 72 hours, if in a rural area, from the date of receipt of the report. If the operator is unable to make the repairs or tune the connection on schedule, it shall promptly notify the telecommunications subscriber and exempt him from the payment of the monthly rental fee for the period when service is interrupted. However, interruptions of telecommunications services arising from a reason attributable to the telecommunications terminal equipment shall not be covered hereby.

Article 34: Telecommunications business operators shall facilitate telecommunications subscribers' payment of fees and making of inquiries. If a telecommunications subscriber requests a list of charges for domestic long distance communications, international communications, mobile communications and information services, etc., the telecommunications business operator shall provide such list free of charge.

The moment that a telecommunications business operator discovers that a telecommunications subscriber has incurred unusually huge telecommunications charges, it shall notify the telecommunications subscriber as quickly as possible and take appropriate measures.

For the purposes of the preceding paragraph, the term “huge telecommunications charges” means charges that arise suddenly and exceed by more than five times the telecommunications subscriber’s average monthly telecommunications charges for the preceding three months.

Article 35: Telecommunications subscribers shall pay timely and in full their telecommunications charges to the telecommunications business operator by the agreed time and by the agreed method. If a telecommunications subscriber fails to pay his telecommunications charges on time, the telecommunications business operator has the right to demand that he pay the telecommunications charges and may charge him liquidated damages at the rate of 0.3% of the unpaid charges per day.

If a telecommunications subscriber has still failed to pay his telecommunications charges 30 days after the agreed time limit for payment, the telecommunications business operator may suspend the provision of telecommunications services to him. If the telecommunications subscriber has still failed to pay his telecommunications charges and liquidated damages within 60 days after the telecommunications business operator has suspended the provision of telecommunications services to him, such operator may terminate the provision of services to him and pursue the payment of the charges owed and the liquidated damages in accordance with the law.

An operator of mobile telecommunications services may agree upon the time limit for, and method of payment of, telecommunications charges with telecommunications subscribers, and, in doing so, it shall not be bound by the time limits specified in the preceding paragraph.

The telecommunications business operator shall restore suspended telecommunications services within 48 hours of the payment of the overdue telecommunications charges and the liquidated damages by a telecommunications subscriber who had failed to pay his telecommunications charges on time.

Article 36: If normal telecommunications services will or, may be, affected by a telecommunications business operator’s engineering work, network construction, etc., the operator must promptly inform subscribers within the specified time limit and make a report to the telecommunications administration authority of the province, autonomous region or municipality directly under the central government.

If telecommunications services are interrupted due to a reason as specified in the preceding paragraph, the telecommunications business operator shall reduce or exempt the subscribers’ payment of the charges for the corresponding period during which telecommunications services were interrupted.

If a circumstance as specified in the first paragraph of this Article arises and the telecommunications business operator fails to promptly notify subscribers, it shall indemnify subscribers for losses incurred as a result thereof.

Article 37: Telecommunications business operators that operate local telephone services or mobile telephone services shall provide to subscribers free of charge such public service telecommunications services as hot lines for reporting fire, crime and traffic accidents and for medical emergencies and ensure that traffic flows freely on such communications lines.

Article 38: A telecommunications business operator shall provide equal and reasonable access services in a timely manner to group subscribers that require access to the operator's telecommunications network through a trunk line.

The telecommunications business operator may not discontinue the access services without approval.

Article 39: Telecommunications business operators shall establish a sound internal service quality management system and may formulate, publish and implement enterprise standards that exceed the telecommunications service standards fixed by the State. Telecommunications business operators shall adopt various methods to listen to the opinions of telecommunications subscribers, subject themselves to supervision by the public and continuously improve the quality of their telecommunications services.

Article 40: If a telecommunications business operator's telecommunications services do not meet State standards for telecommunications services or the enterprise standards published by the operator, or a telecommunication subscriber has objections to the telecommunications charges he is paying, the subscriber has the right to require the telecommunications business operator to resolve the problem. If the telecommunications business operator refuses to resolve the problem or if the telecommunications subscriber is not satisfied with the results of the resolution, the subscriber has the right to appeal to the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government.

The authority that receives the appeal must deal with it in a timely manner and respond to the appellant within 30 days of the date of receipt of the appeal.

If a telecommunications subscriber has an objection to the local telephone charges he is paying, the telecommunications business operator shall provide free of charge, at the telecommunications subscriber's request, the basis on which local telephone charges are billed and be under obligation to take the necessary measures to assist the telecommunications subscriber in investigating the cause.

Article 41: While providing telecommunications services, a telecommunications business operator may not carry out any of the following acts:

- (1) limiting , by any means whatsoever, telecommunications subscribers to using the telecommunications services that it has designated;
- (2) limiting telecommunications subscribers to using telecommunications terminal equipment it has designated or refusing telecommunications subscribers ' use of self-supplied telecommunications terminal equipment for which they have obtained permission to connect to the network;
- (3) violating State regulations by modifying, or modifying in disguised form, its charge rates, or by increasing, or increasing in disguised form, the items for which it charges fees, without authorization;
- (4) refusing, delaying or terminating the provision of telecommunications services to a telecommunications subscriber without a legitimate reason;
- (5) not performing the undertakings it publicly made to telecommunications subscribers or making false publicity that is likely to cause confusion; or



(6) making use of improper means to harass telecommunications subscribers or retaliating against telecommunications subscribers who have filed a complaint.

Article 42: During the course of telecommunications business operations, a telecommunications business operator may not carry out any of the following acts:

- (1) using any method whatsoever to limit a telecommunications subscriber from selecting telecommunications services legally provided by other telecommunications business operators;
- (2) unreasonably cross-subsidizing other business that it operates; or
- (3) engaging in unfair competition by providing telecommunications business or services below cost, in order to squeeze out competitors.

Article 43: The State Council's department in charge of the information industry or the telecommunications administration authority of the provinces, autonomous regions or municipalities directly under the central government shall ex officio supervise and examine the quality of the telecommunications services and the business activities of telecommunications business operators and make public the results of their supervision and spot checks.

Article 44: Telecommunications business operators must perform their corresponding obligations to make telecommunications services universally available, in accordance with relevant State regulations.

The State Council's department in charge of the information industry may determine which telecommunications business operators shall assume specific obligations in respect of the universal availability of telecommunications services by designating such operators or by inviting tenders.

The procedures for the administration of the compensation for the c o s t s of making telecommunications services universally available shall be formulated by the State Council's department in charge of the information industry in concert with the State Council's financial department and department in charge of pricing, and, after approval by the State Council, be published for implementation.

## **CHAPTER FOUR: TELECOMMUNICATIONS-RELATED CONSTRUCTION**

### **Section One: Construction of Telecommunications Facilities**

Article 45: The construction of public telecommunications networks, dedicated telecommunications networks and radio and television transmission networks shall be subject to overall planning and industry administration by the State Council's department in charge of the information industry.

Before the construction of a public telecommunications network, dedicated telecommunications network or radio or television transmission network that is a national information network project or a construction project above the limit set by the State is submitted for approval in accordance with the procedures for the examination and approval of State capital construction projects, the consent of the State Council's department in charge of the information industry shall be obtained.



Basic telecommunications construction projects shall be incorporated into the urban construction master plans and village and town construction master plans of the various levels of local people's governments.

Article 46: The installation of telecommunications facilities shall accompany construction in urban areas and in villages and towns. The telecommunications cables and cable distribution facilities in buildings and the telecommunications cable ducts within the areas used for construction projects shall be incorporated into the design documents for the construction projects and shall be constructed and accepted at the same time as the construction projects. The necessary funds shall be included in the budgets for the construction projects.

When relevant work units or authorities plan and construct roads, bridges, tunnels or subways. They shall notify the telecommunications administration authority and the telecommunications business operators of the province, autonomous region or municipality directly under the central government and consult with them on such matters as reserving space for telecommunications cables.

Article 47: Operators of basic telecommunications services may attach telecommunications circuits to or install such public telecommunications facilities as small antennae and mobile communications base stations on civilian buildings, provided that they notify the holders of title to or users of the buildings in advance and pay a usage fee to the holders of title to or other rights in the buildings in accordance with the rates set by the people's government of the province, autonomous region or municipality directly under the central government.

Article 48: Signs shall be put up in accordance with the relevant State regulations when constructing underground, underwater or other such hidden telecommunications facilities or elevated telecommunications facilities.

An operator of basic telecommunications services shall obtain the consent of the State Council's department in charge of the information industry to lay submarine telecommunications cables and shall carry out the relevant procedures in accordance with the law after obtaining the consent of the relevant authorities. The relevant department of the State Council shall indicate submarine telecommunications cables on marine charts.

Article 49: No work unit or individual may modify or move the telecommunications circuits or other telecommunications facilities of a third party without authorization. If a situation arises where such circuits or facilities must be modified or moved, the consent of the holder of title to such telecommunications facilities shall be obtained, and the work unit or individual that made the request to modify or move the facilities shall bear the expenses necessary for, and compensate for the financial losses caused by, such modification or move.

Article 50: Such activities as construction, production and the planting of trees may not compromise the safety of telecommunications circuits or other telecommunications facilities or impede the flow of traffic on the circuits. In the event that telecommunications safety may be compromised, the relevant telecommunications business operator shall be notified in advance, and the work unit or

individual engaging in such activity shall be responsible for taking the necessary precautions to protect the safety of such telecommunications facilities.

If the provisions of the preceding paragraph are violated, resulting in damage to telecommunications circuits or other telecommunications facilities or impeding the flow of traffic on the circuits, the facilities shall be restored to their original state or repaired and compensation shall be paid for the financial losses incurred.

Article 51: When constructing telecommunications circuits, the required safe distance from existing telecommunications circuits shall be maintained. If the existing circuits are difficult to avoid or must be crossed or if it is necessary to use existing telecommunications cable ducts, consultations shall be held with the holder of title to the existing telecommunications circuits and an agreement entered into. If the consultations fail to produce an agreement, the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government, depending on the circumstances, shall resolve the matter through mediation.

Article 52: No organization or individual may prevent or hinder the construction of telecommunications facilities or the provision of public telecommunications services to telecommunications subscribers by operators of basic telecommunications services in accordance with the law with the exception, however, of areas to which State regulations prohibit or restrict access.

Article 53: Telecommunications vehicles that are being used for special or emergency communications, or for emergency repairs or for dealing with emergencies may, subject to the approval of the public security and traffic control authority, be exempted from observing the various restrictions imposed by signs prohibiting the passage of motor vehicles, provided that the safety and free flow of traffic is ensured.

## Section Two: Connection of Telecommunications Equipment to Networks

Article 54: Telecommunications terminal equipment, wireless communication equipment and equipment used in network interconnection shall be subject to a State-implemented permission system for connecting to networks.

Telecommunications terminal equipment, wireless communication equipment and equipment used in network interconnection that is connected to public telecommunications networks must meet State standards, and a network connection permit must be obtained therefor.

A list of telecommunications equipment subject to network connection permission shall be formulated by the State Council's department in charge of the information industry in concert with the State Council's product quality supervision department and be published for implementation.

Article 55: When carrying out the procedures for a network connection permit for telecommunications equipment, an application shall be submitted to the State Council's department in charge of the

information industry together with a testing report issued by a telecommunications equipment testing organization recognized by the State Council's product quality supervision department or a product quality certificate issued by a certification institute.

The State Council's department in charge of the information industry shall complete its examination of the application and the telecommunications equipment testing report or product quality certificate within 60 days of the date of receipt of the application for a telecommunications equipment network connection permit. If the equipment is found to meet the standards after examination, a network connection permit shall be issued. If the equipment is found not to meet the standards, a response shall be given in writing explaining the reason.

Article 56: Telecommunications equipment producers must ensure that the quality of the telecommunications equipment for which they have obtained a network connection permit is stable and reliable and they may not lower the quality or performance of their products.

Telecommunications equipment producers shall affix a sticker bearing the network connection permission symbol to the telecommunications equipment for which they have obtained a network connection permit. The State Council's product quality supervision department in concert with the State Council's department in charge of the information industry shall perform spot checks to track and supervise the quality of telecommunications equipment for which a network connection permit has been obtained and publish the results of such spot checks.

## **CAPTER FIVE: SECURITY OF TELECOMMUNICATIONS**

Article 57: No organization or individual may use telecommunications networks to produce, reproduce, disseminate or transmit information with content that:

- (1) opposes the fundamental principles determined in the Constitution;
- (2) compromises State security, discloses State secrets, subverts State power or damages national unity;
- (3) harms the dignity or interests of the State;
- (4) incites ethnic hatred or racial discrimination or damages inter-ethnic unity;
- (5) sabotages State religious policy or propagates heretical teachings or feudal superstitions;
- (6) disseminates rumours, disturbs social order or disrupts social stability;
- (7) propagates obscenity, pornography, gambling, violence, murder or fear or incites the commission of crimes;
- (8) insults or slanders a third party or infringes upon the lawful rights and interests of a third party; or
- (9) includes other content prohibited by laws or administrative regulations.

Article 58: No organization or individual may carry out the following acts that compromise the security of telecommunications networks or information:

- (1) deleting or modifying functions of a telecommunications network or the data or application programs stored, processed or transmitted thereon;

- (2) using a telecommunications network to steal or damage a third party's information, thereby prejudicing the lawful rights and interests of such third party;
- (3) deliberately creating, replicating or disseminating computer viruses or using other methods to attack the telecommunications network or other such telecommunications facilities of a third party; or
- (4) carrying out other acts that compromise the security of a telecommunications network or information.

Article 59: No organization or individual may carry out the following acts that disrupt the telecommunications market:

- (1) operating international telecommunications services or telecommunications services to the Hong Kong Special Administrative Region, Macao Special Administrative Region or Taiwan region without authorization, by leasing dedicated international telecommunications lines, privately installing relay equipment or otherwise;
- (2) illegally connecting to a third party's telecommunications circuit, reproducing a third party's telecommunications number(s) or using what one is well aware to be illegally connected or reproduced telecommunications facilities or numbers;
- (3) counterfeiting or altering telephone cards or any other valuable vouchers for telecommunications services; or
- (4) using a sham identification document, or passing off oneself under another's identification document, to carry out network access procedures and use a mobile telephone.

Article 60: Telecommunications business operators shall establish a sound internal security system and implement a security responsibility system in accordance with the State regulations on telecommunications security.

Article 61: In the course of designing, constructing and operating a telecommunications network, a telecommunications business operator shall plan, construct and operate its network in a manner that keeps pace with the security demands of the State and of telecommunications networks.

Article 62: If during the course of providing public information services a telecommunications business operator discovers information transmitted on its telecommunications network that clearly falls within the scope of content specified in Article 57 hereof, it shall immediately stop the transmission thereof, keep the relevant records and make a report thereon to the relevant authority.

Article 63: Telecommunications subscribers shall be responsible for the content of the information they transmit by means of a telecommunications network and the consequences thereof.

If the information transmitted by a telecommunications subscriber through a telecommunications network is secret State information, he must take measures to maintain the confidentiality of such information in accordance with the law concerning the maintenance of State secrets.

Article 64: During such emergency situations as the occurrence of a major natural disaster, the State Council's department in charge of the information industry may, subject to the approval of the State

Council, temporarily requisition various kinds of telecommunications facilities to ensure the flow of important communications.

Article 65: International communications business conducted in the People's Republic of China must pass through an international communications gateway bureau that has been established with the approval of the State Council's department in charge of the information industry.

Communications between the mainland and the Hong Kong Special Administrative Region, the Macao Special Administrative Region and the Taiwan region shall be handled *mutatis mutandis* in accordance with the preceding paragraph.

Article 66: Telecommunications subscribers' freedom to legally use telecommunications and the confidentiality of their communications are protected by law. No organization or individual may, for any reason whatsoever, inspect the content of telecommunications, except that public security authorities, the State security authority and the People's Procuratorate may do so in accordance with the procedures stipulated by law in response to the requirements of State security or the investigation of criminal offences.

No telecommunications business operator or its employees may provide, without authorization, to a third party the content of information transmitted through the telecommunications network by telecommunications subscribers.

## **CHAPTER SIX: PENAL PROVISIONS**

Article 67: If a violation of Article 57 or Article 58 hereof is committed and such violation constitutes a criminal offence, the criminal liability of the perpetrator shall be pursued in accordance with the law. If the violation is insufficient to constitute a criminal offence, the public security authority or State security authority shall punish the perpetrator in accordance with the relevant laws and administrative regulations.

Article 68: If any of the acts specified in Items (2), (3) and (4) of Article 59 hereof is carried out and such act disrupts the telecommunications market and constitutes a criminal offence, the criminal liability of the perpetrator shall be pursued. If such act is insufficient to constitute a criminal offence, the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall *ex officio* order rectification of the matter, confiscate the illegal income and impose a fine of not less than three times and not more than five times the illegal income; if there is no illegal income or if the illegal income is less than Rmb10,000, it shall impose a fine of not less than Rmb10,000 and not more than Rmb100,000.

Article 69: If these Regulations are violated by counterfeiting or assigning a telecommunications service operating permit or telecommunications equipment network connection permit, or by fraudulently using a third party's telecommunications service operating permit or telecommunications equipment network connection permit, or by fabricating the network connection permit code marked on telecommunications equipment, the State Council's department in charge of the information

industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall ex officio confiscate the illegal income and impose a fine of not less than three times and not more than five times the illegal income; if there is no illegal income or if the illegal income is less than Rmb 10,000, it shall impose a fine of not less than Rmb10,000 and not more than Rmb100,000.

Article 70: If these Regulations are violated by the commission of any of the acts set forth below, the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall ex officio order rectification of the matter, confiscate the illegal income and impose a fine of not less than three times and not more than five times the illegal income; if there is no illegal income or if the illegal income is less than Rmb50,000, it shall impose a fine of not less than Rmb100,000 and not more than Rmb1,000,000; if the case is serious, it shall order the perpetrator to suspend operations and undergo rectification:

- (1) operating telecommunications business without authorization or beyond one's scope of business, in violation of the third paragraph of Article 7 hereof or by commission of an act specified in Item (1) of Article 59 hereof;
- (2) establishing an international communications gateway and operating international communications without the approval of the State Council's department in charge of the information industry;
- (3) using, assigning or leasing telecommunications resources, or changing the purpose for which the telecommunications resources are used, without authorization;
- (4) severing a network interconnection, or discontinuing access services, without authorization; or
- (5) refusing to perform obligations in respect of making services universally available.

Article 71: If these Regulations are violated by the commission of any of the acts set forth below, the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall ex officio order rectification of the matter, confiscate the illegal income and impose a fine of not less than one time and not more than three times the illegal income; if there is no illegal income or if the illegal income is less than Rmb10,000, it shall impose a fine of not less than Rmb10,000 and not more than Rmb100,000; if the case is serious, it shall order the perpetrator to suspend operations and undergo rectification:

- (1) violating regulations by charging additional fees in the course of telecommunications network interconnection;
- (2) failing to take effective measures to eliminate a malfunction arising in the technology for communications between networks;
- (3) providing, without authorization, to a third party the content of information transmitted through a telecommunications network by telecommunications subscribers; or
- (4) refusing to pay fees for the use of telecommunications resources in accordance with regulations.

Article 72: If the provisions of Article 42 hereof are violated by competing unfairly in the course of engaging in telecommunications business, the State Council's department in charge of the information



industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall ex officio order rectification of the matter and impose a fine of not less than Rmb100,000 and not more than Rmb1,000,000; if the case is serious, it shall order the perpetrator to suspend operations and undergo rectification.

Article 73: If these Regulations are violated by the commission of any of the acts set forth below, the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall ex officio order rectification of the matter and impose a fine of not less than Rmb50,000 and not more than Rmb500,000; if the case is serious, it shall order the perpetrator to suspend operations and undergo rectification:

- (1) refusing requests from other telecommunication business operators for interconnection;
- (2) refusing to implement the decision on interconnection rendered in accordance with the law by the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government; or
- (3) providing to other telecommunications business operators services through network interconnection that are inferior in quality to those on the telecommunications business operator's own network or to those it provides to its subsidiaries or branches.

Article 74: If a telecommunications business operator violates the provisions of the first paragraph of Article 34 or the second paragraph of Article 40 hereof by refusing to provide to a telecommunications subscriber a list of charges for domestic long-distance communications, international communications, mobile communications and information services free of charge or refuses to provide to a telecommunications subscriber free of charge with the basis on which the local telephone charges are billed when such subscriber has an objection to his local telephone charges and requests to be informed of such basis, the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall order it to rectify the matter and apologize to the telecommunications subscriber. If the telecommunications business operator refuses to rectify the matter and apologize to the telecommunications subscriber, the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall punish it with a warning and a fine of not less than Rmb5,000 and not more than Rmb50,000.

Article 75: If a telecommunications business operator violates the provisions of Article 41 hereof, the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall order it to rectify the matter, apologize to the telecommunications subscribers and compensate such subscribers for their losses. If the telecommunications business operator refuses to rectify the matter, apologize to the telecommunications subscribers and compensate such subscribers for their losses, the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall punish it with a warning and a fine of not less than



Rmb10,000 and not more than Rmb100,000. If the case is serious, it shall order the telecommunications business operator to suspend operations and undergo rectification.

Article 76: If these Regulations are violated by the commission of any of the acts set forth below, the telecommunications administration authority of the province, autonomous region or municipality directly under the central government shall order rectification of the matter and impose a fine of not less than Rmb10,000 and not more than Rmb100,000:

- (1) selling telecommunications terminal equipment for which no network connection permit has been obtained;
- (2) unlawfully preventing or hindering a telecommunications business operator from providing public telecommunications services to telecommunications subscribers; or
- (3) modifying or moving a third party's telecommunications circuits or other telecommunications facilities without authorization.

Article 77: If these Regulations are violated by lowering the quality or performance of products after a telecommunications equipment network connection permit has been obtained therefor, the product quality supervision authority shall impose punishment in accordance with the relevant laws and administrative regulations.

Article 78: If any of the prohibited acts specified in Article 57, Article 58 and Article 59 hereof is carried out and the case is serious, the original authority that issued the perpetrator's telecommunications business permit shall revoke the same.

After the State Council's department in charge of the information industry or the telecommunications administration authority of the province, autonomous region or municipality directly under the central government has revoked a telecommunications business permit, it shall notify the enterprise's registration authority thereof.

Article 79: If an employee of the State Council's department in charge of the information industry or the telecommunications administration authority of a province, autonomous region or municipality directly under the central government is derelict in his duties, abuses his authority or practises graft and such act constitutes a criminal offence, his criminal liability shall be pursued; if such act is insufficient to constitute a criminal offence, he shall be subjected to administrative sanctions.

## **CHAPTER SEVEN: SUPPLEMENTARY PROVISIONS**

Article 80: The State Council shall separately formulate specific procedures governing the investment in and operation of telecommunications business in the People's Republic of China by foreign organizations or individuals and investment in and operation of telecommunications business on the mainland by organizations or individuals from the Hong Kong Special Administrative Region, the Macao Special Administrative Region and the Taiwan region.

Article 81: These Regulations shall be implemented as of the date of promulgation.

ATTACHMENT

CLASSIFICATION OF TELECOMMUNICATIONS SERVICES

1. Basic telecommunications services

- (1) fixed network domestic long distance and local telephone services;
- (2) mobile network telephone and data services;
- (3) satellite communications and mobile satellite communications services;
- (4) internet and other public data transmission services;
- (5) lease and sale of broadband, wavelengths, optical fibres, optical cables, cable ducts and other network elements;
- (6) network carriage, access and outsourcing services;
- (7) international communications infrastructure and international telecommunications services;
- (8) radio paging services;
- (9) resale of basic telecommunications services.

The services in Items (8) and (9) shall be administered as value-added telecommunications services.

2. Value-added telecommunications services

- (1) email;
- (2) voice mail;
- (3) online information database storage and retrieval;
- (4) electronic data interchange;
- (5) online data processing and transaction processing;
- (6) value-added facsimile;
- (7) internet access services;
- (8) internet information services;
- (9) video conferencing services.

**(Footnotes)**

<sup>1</sup> This is an unofficial translation of the China's telecommunications regulations provided by the U.S. Information Technology Office (USITO).

## Appendix C

### **U.S.-China Joint Commission on Commerce and Trade Business Development and Industrial Cooperation Working Group Information Industry Subgroup**

#### **2003 Work Plan**

Based on the Document Concerning the Purpose and Procedures of the Information Industry Subgroup, the principal goal is to promote commercial relations and bilateral trade between the U.S. and China in this sector. To expand bilateral trade and address commercial issues in information industry, the parties to the Subgroup agree to support the work program below.

Parties to the Subgroup agree to identify, develop, and support trade events, such as trade missions, reverse trade missions, exhibitions, conferences, seminars, and similar events, that foster trade and commercial ties between the United States and China. Through Subgroup meetings and communication between meetings, both parties agree to name their development prospects and possible trade opportunities in the information industry field. The parties will assist, in the role of both visitor and host, in identifying and recruiting governmental and business representatives to participate in these events. Each nation will also provide logistical support to visiting delegations to the extent feasible.

Parties to the Subgroup agree to strive **to co-organize events in 2003**, in either the United States or China, on key policy issues affecting the information industry sector or on emerging technologies of mutual interest.

<u>Date</u>	<u>EVENT</u>
Early June 2003	Orientation visit to US standard & implementation bodies
Late June 2003	Semiconductor and software export licensing procedures seminar
October 2003	Telecommunications policy & law seminar

Parties to the Subgroup agree to support key trade events in the information industry sector in the United States and China such as those listed below in calendar year 2003.

<u>DATE</u>	<u>EVENT</u>
1. March 9-15, 2003	Microelectronics Trade Mission to Shanghai (in conjunction with Electronics China/Semicon China)
2. March 17-19, 2003	Wireless 2003 (Cellular Telecommunications Industry Association event) New Orleans, Louisiana
3. April 5-10, 2003	National Association of Broadcasters Las Vegas, Nevada
4. April 2003	Seventh China International E-commerce Summit Beijing
5. June 1-5, 2003	SuperComm Atlanta, Georgia
6. June 23-26, 2003	ELE/EXPO COMM 2003 Shanghai
7. Late June 2003	Chinese international software exhibition Beijing
8. September 16-18, 2003	PC EXPO New York, New York
9. November 11-15, 2003	PT Wireless and Networks COMM Beijing
10. November 16-21, 2003	Comdex Las Vegas, Nevada
11. November 18-21, 2003	Original Equipment Manufacturers (OEM)-focused Reception at EXPO COMM China South Guangzhou
12. December 8-11, 2003	Internet World Fall New York, New York

13. December 2003

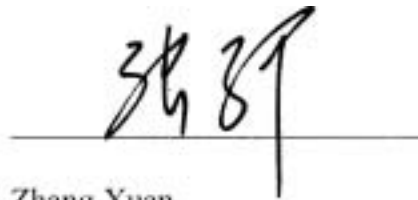
Information Industry Subgroup meeting  
Signing of the 2004 Subgroup Work Plan  
Beijing.

Additions or adjustments to this Work Plan will be made at subsequent meetings of the Subgroup or between meetings of the Subgroup whenever appropriate and mutually agreed to by the Chinese and U.S. co-chairs of the Subgroup.

Any activities undertaken by the Subgroup, including annual meetings, will be subject to the availability of appropriated funds and subject to the laws and regulations of the United States and China.



Michelle O'Neill  
Deputy Assistant Secretary for  
Information Technology Industries  
U.S. Department of Commerce  
Date: December 9, 2002



Zhang Xuan  
Director-General,  
Foreign Affairs Department  
Ministry of Information Industry  
Date: Dec. 9, 2002

**APPENDIX D**  
**USEFUL CONTACTS: UNITED STATES**

**U.S. DEPARTMENT OF COMMERCE**  
**INTERNATIONAL TRADE ADMINISTRATION**

*U.S. Department of Commerce/International Trade Administration staff located throughout the United States can answer many questions that U.S. IT, telecommunications, and e-commerce firms have about doing business abroad.*

**Trade Development**

***Office of Information Technologies and Electronic Commerce (OITEC)***

Tu-Trang Phan (Information Technologies)  
U.S. Department of Commerce  
14th Street & Constitution Avenue, N.W.  
Room 2802  
Washington D.C. 20230  
Phone: (202) 482-0480  
Fax: (202) 482-0952  
E-mail: [tu-trang\\_phan@ita.doc.gov](mailto:tu-trang_phan@ita.doc.gov)  
Web address: <http://www.export.gov/infotech>

Jeff Rohlmeier (E-commerce)  
U.S. Department of Commerce  
14th Street & Constitution Avenue, N.W.  
Room 2001A  
Washington D.C. 20230  
Phone: (202) 482-0343  
Fax: (202) 482-5522  
E-mail: [jeff\\_rohlmeier@ita.doc.gov](mailto:jeff_rohlmeier@ita.doc.gov)  
Web address: <http://www.export.gov/infotech>

***Office of Telecommunications Technologies (OTT)***

John Henry  
U.S. Department of Commerce  
14th Street & Constitution Avenue, N.W.  
Room 4327  
Washington D.C. 20230  
Phone: (202) 482-1193  
Fax: (202) 482-5834  
E-mail: [john\\_henry@ita.doc.gov](mailto:john_henry@ita.doc.gov)  
Web address: <http://www.export.gov/infotech>

**U.S.-BASED IT AND TELECOMMUNICATIONS TRADE ASSOCIATIONS*****American Electronics Association (AEA)***

William T. Archey  
President  
1225 Eye Street, NW  
Suite 950  
Washington, DC 20005  
Tel: (202) 682-9110  
Fax: (202) 682-9111  
Email: Bill\_Archey@aeonet.org  
Web address: <http://www.aeonet.org>

***Business Software Alliance (BSA)***

Robert Holleyman, II  
President  
1150 18th Street  
Suite 700  
Washington, DC 20036  
Tel: (202) 872-5500  
Fax: (202) 872-5501  
Email: software@bsa.org  
Web address: <http://www.bsa.org>

***Cellular Telecommunications & Internet Association (CTIA)***

Thomas Wheeler  
President and CEO  
1250 Connecticut Avenue, NW, Suite 800  
Washington, DC 20036  
Tel: (202) 785-0081  
Fax: (202) 785-0721 or (202) 467-6990  
Contact: Robert Roche, Research Director;  
Jeffrey Nelson, Communications Director  
Web address: <http://www.wow-com.com>

***Computer & Communications Industry Association (CCIA)***

Ed Black  
President  
666 11th Street, NW  
Suite 600  
Washington, DC 20001  
Tel: (202) 783-0070  
Fax: (202) 783-0534  
Email: ccia@aol.com



*Information Technology Industries*  
Web address: <http://www.ccianet.org>

A-33

***Information Technology Association of America***

Harris Miller  
President  
1616 North Fort Myer Drive, Suite 1300  
Arlington, VA 22209  
Tel: (703) 522-5055  
Fax: (703) 525-2279  
Email: [ccayo@itaa.org](mailto:ccayo@itaa.org)  
Web address: <http://www.itaa.org>

***Information Technology Industry Council***

Rhett B. Dawson  
President  
1250 Eye Street, NW  
Suite 200  
Washington, DC 20005  
Tel: (202) 737-8888  
Fax: (202) 638-4922  
Email: [rdawson@itic.nw.dc.us](mailto:rdawson@itic.nw.dc.us)  
Web address: <http://www.itic.org>

***Personal Communications Industry Association (PCIA)***

Jay Kitchen  
President  
500 Montgomery Street, Suite 700  
Alexandria, VA 22314-1561  
Tel: (703) 739-0300  
Fax: (703) 836-1608  
Contact: Mark Golden  
Web address: <http://www.pcia.com>

***Satellite Industry Association (SIA)***

Richard DalBello  
Executive Director  
225 Reinekers Lane, Suite 600  
Alexandria, VA 22314  
Tel: (703) 549-8697  
Fax: (703) 549-9188  
E-mail: [info@sia.org](mailto:info@sia.org)  
Web address: <http://www.sia.org>

***Software and Information Industry Association***

Kenneth Wasch  
President

1730 M. Street, NW  
Suite 700  
Washington, DC 20036  
Tel: (202) 452-1600  
Fax: (202) 223-8756  
Email: kwasch@spa.org  
Web address: <http://www.siia.net>

***Telecommunications Industry Association (TIA)***

Jason Leuck  
Director, International Affairs  
1300 Pennsylvania Avenue, NW, Suite 350  
Washington, DC 20004  
Tel: (202) 383-1493  
Fax: (202) 383-1495  
E-mail: [jleuck@tia.eia.org](mailto:jleuck@tia.eia.org)  
Web address: <http://www.tiaonline.org>

***U.S.-China Business Council***

Robert Kapp  
President  
1818 N Street NW  
Suite 200  
Washington, DC 20036  
Tel: (202) 429-0340  
Fax: (202) 775-2476  
Web address: <http://www.uschina.org>

***United States Council for International Business (USCIB)***

1212 Avenue of the Americas  
New York, NY 10036  
Tel: (212) 354-4480  
Policy Advocacy Fax: (212) 575-0327  
Membership Fax: (212) 391-6568  
General information: [info@uscib.org](mailto:info@uscib.org)  
Membership: [membership@uscib.org](mailto:membership@uscib.org)  
Web address: <http://www.uscib.org>

***United States Telecom Association (USTA)***

Walter B. McCormick, Jr.  
President & CEO  
1401 H Street, NW, Suite 600  
Washington, DC 20005-2164  
Tel: (202) 326-7300  
Fax: (202) 326-7333

Contact: Kathleen Kelleher

Tel: (202) 326-7357

E-mail: [kkellehe@usta.org](mailto:kkellehe@usta.org)

Web address: <http://www.usta.org>

**USEFUL CONTACTS: CHINA****CHINESE GOVERNMENT****Ministry of Foreign Trade and Economic Cooperation (MOFTEC)**

2 Dong Chang'an Avenue

Dongcheng District

Beijing 100731

Tel: 86-10-6519-8114

Fax: 86-10-6519-8039

Web address: <http://www.moftec.gov.cn>

**Ministry of Information Industry (MII)**

13 West Chang An Avenue

Beijing 100804, China

Tel: 8610 660177061

Fax: 8610 66011284

Web address: <http://www.mii.gov.cn>

**Ministry of Science and Technology (MOST)**

No. 15 Fuxing Road

Haidian District

Beijing 100038

Tel: 8610-6851-5544

Web address: <http://www.most.gov.cn>

**State Administration of Radio, Film and Television (SARFT)**

No. 2 Fuxingmenwai Street

Xicheng District

Beijing 100866

Tel: 8610-6609-3114

Web address: <http://www.sarft.gov.cn>

**State Council Informatization Office (SCITO)**

P.O. Box: 1720

Beijing 100017

Tel: 8610 83087437

Fax: 8610 83085664

**State Development Planning Commission (SDPC)**

38 Yuetannanjie

Xicheng District

Beijing 100824

Tel: 86-10-6850-2114

Fax: 8610-6850-1090

Web address: <http://www.sdpc.gov.cn>

**State Economic Trade Commission (SETC)**

26 Xuanwumen Xidajie

Xuanwu District

Beijing 100053

Tel: 8610-6319-2298

Fax: 8610-6319-2177

Web address: <http://www.setc.gov.cn>

Web address: <http://www.chinasmb.gov.cn>

**State Intellectual Property Office (SIPO)**

6 Xituchenglu

Jimengqiao

Haidian District

Beijing 100088

Tel: 8610-8208-6768

Fax: 8610-6201-9307

Web address: <http://www.sipo.gov.cn>

**Beijing Municipal Office of National Information Infrastructure**

No. 3, Nanlishi Road Toutiao

Beijing, China 100045

Tel: 8610 68050148

Fax: 8610 86821092

Contact: Zou Tong, Vice Director General

E-Mail: [zout@bnii.gov.cn](mailto:zout@bnii.gov.cn)

**Informatization Office of Shanghai Municipal People's Government**

7F, Sun Tong Infoport Plaza

55 Huaihai(w) Road

Shanghai, China 200030

Tel: 8621 62822266

Fax: 8621 62839339

Web address: <http://www.infooffice.sta.net.cn/>

**Bureau of Information Technology, Sichuan Province**

No. 66, Gwiwangquiao Western Avenue

Chengdu, China 610017

Tel: 8628 86625211

Fax: 8628 958153391

Web address: <http://www.scit.gov.cn>

A-38

*Information Technology Industries*

**Sichuan Provincial Department of Foreign Trade & Economic Cooperation**

Science & Technology Department

Chenghua Street

Chengdu, Sichuan 610081

Tel: 8628 3334033-6510

Fax: 8628 3332164

**Shaanxi Province Commercial Information Center,**

**Shaanxi Electronic Certificate Authority Center**

No. 85, Xiwu Road, Xi'an, China 710004

Tel: 8629 5226199

Fax: 8629 5226299

Web address: <http://www.shaanxi.gov.cn>

**INDUSTRY ASSOCIATIONS**

**U.S. Information Technology Office (USITO)**

C511B Lufthansa Center Offices

50 Liangmaqiao Road

Chaoyang District

Beijing 100016

Tel: 8610-6465-1540

Fax: 8610-6465-1543

Contact: Dan Brody, Managing Director

E-mail: [djbrody@usito.org](mailto:djbrody@usito.org)

Web address: <http://www.usito.org>

**The American Chamber of Commerce in China**

China Resources Building, #1903

8 Jianguomenbei Dajie

Beijing 100005

Tel: 8610-8519-1920

Fax: 8610-8519-1910

Web address: <http://www.amcham-china.org.cn>

**China International Electronic Commerce Center**

Sichuan Branch, Chongqing Branch

No. 16, Section 3, Ren Min Zhong Road

Chengdu, Sichuan, China 610031

Tel: 8628 67732640

Fax: 8628 67732640

**China Electronic Commerce Association**

Building 2

No. 27 Wanshou Road

Beijing 100846

*Information Technology Industries*  
Tel: 8610 68208238/8247  
Fax: 8610 68208238  
Web address: <http://www.ceca.net.cn>

A-39

**U.S. DEPARTMENT OF COMMERCE  
INTERNATIONAL TRADE ADMINISTRATION  
THE U.S. COMMERCIAL SERVICE**

**Embassy of the United States of America**

U.S. & Foreign Commercial Service

31<sup>st</sup> Floor, North Tower

Beijing Kerry Center

1 Guang Hua Road

**Beijing**, China 100020

Tel: 8610 85296655

Fax: 8610 85296558

Web address: <http://www.usatrade.gov>

**Contacts:**

Sarah Kemp, Commercial Officer (telecommunications products and services)

E-mail: [Sarah.Kemp@mail.doc.gov](mailto:Sarah.Kemp@mail.doc.gov)

Tel: 8610 85296655 ext. 813

Jianhong (Michael) Wang, Commercial Specialist (telecommunications products and services)

E-mail: [Jianhong.Wang@mail.doc.gov](mailto:Jianhong.Wang@mail.doc.gov)

Tel: 8610 85296655 ext. 865

Cameron Werker, Commercial Officer (IT, Internet, e-commerce)

E-mail: [Cameron.Werker@mail.doc.gov](mailto:Cameron.Werker@mail.doc.gov)

Tel: 8610 85296655 ext. 818

Xianmin Xi, Commercial Specialist (IT, Internet, e-commerce)

E-mail: [Xianmin.Xi@mail.doc.gov](mailto:Xianmin.Xi@mail.doc.gov)

Tel: 8610 85296655 ext. 829

Shujuan (Merry) Cao, Commercial Specialist (IT, Internet, e-commerce)

E-mail: [Shujuan.Cao@mail.doc.gov](mailto:Shujuan.Cao@mail.doc.gov)

Tel: 8610 85296655 ext. 861

**America Consulate General**

U.S. & Foreign Commercial Service

Shanghai Center

Suite 631

1376 Nanjing West Road

**Shanghai** 200040



A-40

Tel: 8621 62797630

Fax: 8221 62797639

Web address: <http://www.usatrade.gov>

*Information Technology Industries*

Contacts:

Jonathan Heimer, Commercial Officer

E-mail: [Jonathan.Heimer@mail.doc.gov](mailto:Jonathan.Heimer@mail.doc.gov)

Christie Ho, Commercial Representative

E-Mail: [Christie.ho@mail.doc.gov](mailto:Christie.ho@mail.doc.gov)

Ronnie Xu, Senior Commercial Specialist,

E-Mail: [Ronnie.xu@mail.doc.gov](mailto:Ronnie.xu@mail.doc.gov)

**American Consulate General**

U.S. & Foreign Commercial Service

4 Lingshiguan Road

**Chengdu**, Sichuan 610041

Tel: 8628 85583992

Fax: 8628 85589221

Web address: <http://www.usatrade.gov>

Contacts:

Helen Peterson, Principal Commercial Officer

E-mail: [Helen.Peterson@mail.doc.gov](mailto:Helen.Peterson@mail.doc.gov)

Rose Nickel, Commercial Representative

E-Mail: [rose.nickel@mail.doc.gov](mailto:rose.nickel@mail.doc.gov)

Xu Tao, Commercial Assistant

E-Mail: [xu.tao@mail.doc.gov](mailto:xu.tao@mail.doc.gov)

**American Consulate General**

U.S. & Foreign Commercial Service

14/F China Hotel Office Tower

Room 1454-61 China Hotel

Liu Hua Lu

**Guangzhou** 510015

Tel: 8620 86674011

Fax: 8620 86666409

Contact: Kent Guo, Commercial Representative

E-Mail: [Kent.Guo@mail.doc.gov](mailto:Kent.Guo@mail.doc.gov)

Web address: <http://www.usatrade.gov>

*Information Technology Industries*  
**U.S. & Foreign Commercial Service**

A-41

52 Shi Si Wei Road

Heping District

**Shenyang** 110003

Tel: 8624-23221198

Fax: 8624-2322-2206

Contact: Erin Sullivan, Commercial Officer

E-mail: [Erin.Sullivan@mail.doc.gov](mailto:Erin.Sullivan@mail.doc.gov)

Web address: <http://www.usatrade.gov>

**APPENDIX E: SELECTED IT AND TELECOMMUNICATIONS TRADE EVENTS IN CHINA**

*Participation in trade fairs is one of the most cost effective ways of testing a foreign market's receptivity to a product and investigating competitors, and of finding customers or potential agents and distributors. In China, participants use trade fairs to do business, not merely to advertise their products.*

*The events listed below are some of the major ones in China. They are international in scope, giving visitors, buyers, and exhibitors alike the foundation needed to start business relations. For a complete list of IT, telecommunications, and related trade fairs in China supported by the U.S. Department of Commerce, see <http://www.usatrade.gov>. In addition, the Department's Information Technology Industries' web site (<http://www.export.gov/infotech>) lists IT- and telecommunications-related trade fairs.*

*U.S. Department of Commerce personnel participate in many of these trade fairs with or on behalf of U.S. firms, offering them market promotion and additional services such as trade lead generation. These trade promotion events facilitate participation at prices far below regular trade fair participation costs or offer additional services not elsewhere available. In addition, U.S. firms on the waiting list for exhibit space, or not interested in exhibiting but needing qualified assistance and meeting rooms at specific trade shows, should contact the Department's commercial specialists in the particular country (see *Contacts*) to discuss options.*

***Beijing******China Computerworld Expo***

<http://www.ccwexpo.com.cn/english/>

Date: September 2003

Location: China International Exhibition Center, Beijing

Organizer: China Computerworld Publishing & Servicing Company

Infoex-world Services Ltd.,

Tel: 86-10-68259420

Fax: 86-10-68259768

E-mail: Zhangwy@public3.bta.net.cn

***PT/Expo Communications***

<http://www.ejkrause.com/events/9202.html>

Date: October 2003

Location: China International Exhibition Center, Beijing

Organizer: E.J. Krause & Associates

Tel: 86-10-8451-1832

Fax: 86-10-8451-1829

Email: ejk@public3.bta.net.cn

***China International Electronic Commerce Summit***

Event Type: International Conference

Date: April 2003

Location: International Convention Center, Beijing

Organizers: Ministry of Information Industry,

Tel: 8610-68200719

Fax: 8610-68200717

***Comdex China***

<http://www.comdex.com.cn/english/index.htm>

Date: To Be Determined

Location: China International Exhibition Center, Beijing

Tel: 86-10-84602153

Fax: 86-10-64671904

***Shanghai***

***Shanghai International Industry Fair (SIF)***

<http://www.sif-expo.com/sif2002/eindex.htm>

Date: October 2003

Location: Shanghai Exhibition Center

1000 Yanan Road, Shanghai

Tel: 86-21-6279-0279, 86-21-6256-0100

Fax: 86-21-6256-1068

***Supercomm Asia***

<http://www.supercommasia.com/english/edefault.asp>

Date: April 2003

Location: Shanghai

Times Publishing Group

Times Centre

1 New Industrial Road

Singapore 536196

Tel: (65)2848844(General); (65)3807436(Direct)

Fax: (65)2865754

E-mail: [jshuang@tpl.com.sg](mailto:jshuang@tpl.com.sg)

Web site: <http://www.tpl.com.sg>

***Guangdong***

***China High-Tech Fair (Shenzhen)***

<http://www.chtf.com/english/>

Date: October 2003

Location: Shenzhen International Exhibition Center

Organizer: IDG Expos and Shenzhen Municipal Government

Tel: 86-755-369-9381; 86-755-209-9209

Fax: 86-755-367-1044

**APPENDIX F: LIST OF ORGANIZATIONS  
CONTRIBUTING INFORMATION FOR THIS REPORT**

**GOVERNMENT**

Bank of Communications  
Beijing Informatization Office  
Beijing Municipal Office of National Information Infrastructure  
Bureau of Information Industry, Sichuan  
Informatization Office of Shanghai Municipal People's Government  
Ministry of Information Industry  
Ministry of Foreign Trade and Economic Cooperation China International Electronic Commerce Center, Sichuan Branch  
Shaanxi Province Informatization Office  
Shaanxi Province Economic and Trade Commission  
Shanghai Informatization Office  
Shanghai Economic Commission  
Shanghai Communications Administration  
Sichuan Provincial Department of Foreign Trade and Economic Cooperation  
State Council Informatization Office  
State Economic and Trade Commission

**NON-GOVERNMENT**

AsiaInfo  
Bonsen Tech  
Channel Beyond  
China International Electronic Commerce Center  
China Electronic Commerce Association  
China National Cereals, Oils & Foodstuffs Import and Export Corporation (COFCO)  
China Telecom Guangdong  
China Unicom  
Cosco Lines Co. Ltd.  
Digital China, Legend  
E&T International (EDI Center)  
ecSolutions Corp. Ltd.  
Great Wall Telecom  
Guangzhou Huanghuagang Information Park  
Huawei Technologies  
Pacific Century International  
Pudong Software Park  
Shaanxi Province Commercial Information Center  
Shaanxi Electronic Certificate Authority Center  
Shanghai Bell Alcatel

*Information Technology Industries*

A-45

Super Data Software

TOP Group

UT Starcom

University of Electronic Science and Technology of China

Xian Jiaotong University

Xian National High Technology Industrial Development Zone

The U.S. Department of Commerce would appreciate input from U.S. businesses that have used this ExportIT report in conducting export market research. Please review the privacy statement/disclaimers at the bottom of this document/website. Please take a few moments to complete the attached survey and fax it to 202/482/0952, mail it to OITEC, Room 2806, U.S. Department of Commerce, Washington, DC 20230, or Email:timothy\_miles@ita.doc.gov

### **ExportIT Report User Survey**

\*\*\*About Our Report\*\*\*

ExportIT Report title: \_\_\_\_\_

1. How did you obtain a copy of the report?

\_\_\_Online through the Information Technology Industries website

\_\_\_Direct mail

\_\_\_Other Commerce office

\_\_\_Trade association

\_\_\_State or local government office

\_\_\_At a conference/seminar

\_\_\_Other source (specify): \_\_\_\_\_

2. Do you prefer these reports in hardcopy or electronic form? \_\_\_\_\_

3. Please indicate the extent to which your needs were met by assigning a number to each of the following statements:

1-Very satisfied

2-Satisfied

3-Neither satisfied or dissatisfied

4-Dissatisfied

5-Very dissatisfied

6-Not applicable

\_\_\_Overall needs addressed

\_\_\_Accuracy of information

\_\_\_Completeness of information

\_\_\_Clarity of information

\_\_\_Quality of analysis

\_\_\_Relevance of information to your business

4. In your opinion, did reading the ExportIT report facilitate any of the following?

\_\_\_Decided to enter or increase presence in market

\_\_\_Developed an export marketing plan

\_\_\_Added to existing knowledge of country/market

\_\_\_Corroborated market data from other sources

\_\_\_Decided to bypass or reduce presence in market



\_\_ Other (specify): \_\_\_\_\_

5. What other countries/regions should we cover in the ExportIT report program?

\_\_\_\_\_

6. Comments:

\_\_\_\_\_

\*\*\*About Your Firm\*\*\*

1. Number of employees: \_\_ 1-99 \_\_ 100-249 \_\_ 250-499  
\_\_ 500-999 \_\_ 1,000+

2. Location (abbreviation of your state only): \_\_\_\_

3. Business activity (check one):

\_\_ Manufacturing

\_\_ Service

\_\_ Agent, broker, manufacturer's representative

\_\_ Export management or trading company

\_\_ Other (specify): \_\_\_\_\_

4. Value of export shipments over the past twelve months:

\_\_ less than \$10K

\_\_ \$11k-\$100K

\_\_ \$101K-\$500K

\_\_ \$501K-\$999K

\_\_ \$1M-\$5M

\_\_ More than \$5M

-----  
Thank you---we value your input!  
\_\_\_\_\_

This report is authorized by law (15 U.S.C. 1512 et seq., 15 U.S.C. 171 et seq.). While you are not required to respond, your cooperation is needed to make the results of this evaluation comprehensive, accurate, and timely. Public reporting for this collection of information is estimated to be 10 minutes per response, including the time for reviewing instructions, and completing and reviewing the collection of information. All responses to this collection of information are voluntary, and will be provided confidentially to the extent allowed by law. Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Reports Clearance Officer, International Trade Administration, Department of Commerce, Room 4001, 14th and Constitution Avenue, N.W., Washington, D.C. 20230.

-----  
FORM ITA 4130P-1 (rev.6/03)

OMB. No.0625-0217; Expires 07/31/05